

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.07.96
Test oil : ISO 4113
Part no. : 0 460 484 105
Pump designation : VE4/8F2200R574-2

Customer-spec. information
Customer : SEAT
Motor : 1.9L SD Klima
Power KW : 47.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

A01

Plunger stroke mm : 0,9
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 5.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 33.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 525
Del. quantity
cm3/1000 strokes : 7.0
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 9.5
Tolerance
cm3/1000 str. ± : 1.0
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 9.5
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2525
 Del. quantity
 cm³/1000 strokes : 10.5
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 53.0
 Tolerance
 cm³/1000 str. + : 13.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000

 SV travel mm : 7.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750

 SV travel mm : 3.5
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2000

 SV travel mm : 1.3

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Tolerance mm + : 0.4
 Shutoff solenoid
 Volt : 12

Timing device
 solenoid Volt : 100

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 8.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Supply pump
 pressure bar : 4.3
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2525
 Del. quantity
 cm³/1000 strokes : 10.5
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000s. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400

Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2675
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 37.5
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -3.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 33.5
Tolerance
cm³/1000 str. + : 0.5

Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. + : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,7
Tolerance mm + : +0,2
Dimension MS mm : 1,3
Tolerance mm + : +0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 36,0..40,0

Control lever
position YB mm : 47,7..57,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.06.96
Test oil : ISO 4113

Part no. : 0 460 424 132
Pump designation : VE4/12F1350R621-1

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8040.45.5100 EU2
Power KW : 85.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 55
Tolerance °C + : 1

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000

Setting mm : 1.5
Tolerance mm + : 0.1
Shutoff solenoid Volt : 24

KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.9
Tolerance bar + : 0.3
Shutoff solenoid Volt : 24

KSB/AFB Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 72.0
Tolerance cm3/1000 str. + : 0.5
Spread cm3/1000 strokes : 3.5
Check tolerance cm3/1000S. : 5.0
Shutoff solenoid Volt : 24

KSB/AFB Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 53.0
Tolerance cm3/1000 str. + : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm3/1000S. : 5.0

KSB/AFB Volt : 24

IDLE SETTING

Rated speed rpm : 325
 Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 str. +- : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000s. : 5.0
 KSB/AFB Volt : 24

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1550
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 73.0
 Tolerance
 cm³/1000 str. +- : 25.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.7
 Tolerance mm +- : 0.1
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24
 Setting point KSB
 Rated speed rpm : 340
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.0
 Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 1.2
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.0
 Tolerance mm +- : 0.6
 Check
 tolerance mm +- : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.5
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24
 Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 5.2
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24
 Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.0
 Tolerance bar +- : 0.8
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2

Check tolerance
 ccm/10s +- : 22.2
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6

Check tolerance
 ccm/10s +- : 41.6
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1550
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 15.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1475
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 50.0
 Tolerance
 cm3/1000 str. +- : 6.0
 Check tolerance
 cm3/1000S. +- : 7.0
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1600

Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 350
 Del. quantity
 cm3/1000 strokes : 69.5
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 69.5
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 3.5
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 77.5
 Tolerance
 cm3/1000 str. +- : 2.0
 Check tolerance
 cm3/1000S. +- : 3.5
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 700
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 72.0

Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. +- : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 50.0

A08

Tolerance
cm3/1000 str. +- : 10.0
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

Rated speed rpm : 130
Del. quantity
cm3/1000 strokes : 75.0
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm +- : +0,1
Dimension KF mm : 8,4
Tolerance mm +- : +0,2
MS1 dimension mm : 1,6
Tolerance mm +- : +0,15/-0,1

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 36,9..40,9

Control lever
position YB mm : 38,9..44,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.96
Test oil : ISO 4113

Part no. : 0 460 494 403
Pump designation : VE4/9F2150R637

Customer-spec. information
Customer : NISSAN-MISA
Motor : GX-3
Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200
Setting mm : 3.2
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 2150
Del. quantity
cm3/1000 strokes : 44.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 8.5
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2150
SV travel mm : 9.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
SV travel mm : 1.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2150
Supply pump
pressure bar : 8.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Supply pump
pressure bar : 5.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 41.6

Shutoff solenoid
Volt : 12
Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2350
Del. quantity
cm³/1000 strokes : 33.3
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000s. + : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2700
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000s. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 42.2
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 43.2

Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1800
 Del. quantity
 cm3/1000 strokes : 44.3
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 41.0
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2150
 Del. quantity
 cm3/1000 strokes : 44.5
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 1.3
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5

Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 2.5
 Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Del. quantity
 cm3/1000 strokes : 0.80
 Tolerance
 cm3/1000 str. +- : 0.02
 Check tolerance
 cm3/1000S. +- : 0.10

START TRANSITION

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 45.0
 Tolerance
 cm3/1000 str. +- : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 270
 Del. quantity
 cm3/1000 strokes : 70.0
 Tolerance
 cm3/1000 str. +- : 20.0

Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,4
Tolerance mm + : +0,2
Dimension MS mm : 1,2
Tolerance mm + : +0,2
KSB travel mm : 4,3
TLA travel mm : 6,5

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 0,8

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 35,1..39,1

Control Lever
position YB mm : 56,9..68,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.07.96
Test oil : ISO 4113
Part no. : 0 460 423 002
Pump designation : VE3/12F112SR532

Customer-spec. information
Customer : MWM
Motor : TD 226-B3
Power KW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1
Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

A13

Plunger stroke mm : 1,04
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 600
Setting mm : 3.0
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 600
Supply pump
pressure bar : 5.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 91.0
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 str. + : 3.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 63.5

Tolerance
cm3/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 100.0
Tolerance
cm3/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 700
SV travel mm : 4.4
Tolerance mm + : 0.4
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
SV travel mm : 1.3
Tolerance mm + : 0.4
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Supply pump
pressure bar : 8.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Supply pump
pressure bar : 3.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1050
Overflow quantity
ccm/10s : 152.7
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 400
Overflow quantity
ccm/10s : 111.1
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1125
Del. quantity
cm3/1000 strokes : 63.5
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 8.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Del. quantity
cm3/1000 strokes : 7.5
Check tolerance
cm3/1000S. + : 7.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 34.0
Tolerance
cm3/1000 str. + : 15.0
Check tolerance
cm3/1000S. + : 15.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 1050
 Del. quantity
 cm3/1000 strokes : 84.0
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 92.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 5.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 87.5
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 91.0
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1050
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 250
 Del. quantity
 cm3/1000 strokes : 90.0
 Tolerance
 cm3/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 180
 Del. quantity
 cm3/1000 strokes : 130.0

Tolerance
cm3/1000 str. \pm : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 6,4
Tolerance mm \pm : $\pm 0,2$
MS1 dimension mm : 1,1
Tolerance mm \pm : $\pm 0,15/-0,1$

CONTROL LEVER POSITION SET

Control lever
position YA mm : 41,4..45,4

Control lever
position YB mm : 37,5..43,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.02.96
Test oil : ISO 4113
Part no. : 0 460 426 220
Pump designation : VE6/12F1150R534

Customer-spec. information
Customer : MWM
Motor : TD 226-B6
Power KW : 92.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 700
Setting mm : 2.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 700
Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 4.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 6.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 61.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 800
 SV travel mm : 3.6
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 SV travel mm : 0.7
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
 Supply pump
 pressure bar : 7.8
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 4.3
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1050
 Overflow quantity
 ccm/10s : 138.8
 Tolerance
 ccm/10s ± : 41.6
 Check tolerance
 ccm/10s ± : 41.6

Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 125.0
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
 ccm/10s ± : 22.2
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 61.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000s. ± : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1220
 Del. quantity
 cm³/1000 strokes : 7.5
 Check tolerance
 cm³/1000s. ± : 7.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1170
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. ± : 15.0
 Check tolerance
 cm³/1000s. ± : 15.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1050
 Del. quantity
 cm³/1000 strokes : 67.5
 Tolerance
 cm³/1000 str. ± : 1.5

Check tolerance
cm3/1000s. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 65.2
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000s. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000s. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 68.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000s. + : 2.5
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1150
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000s. + : 1.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000s. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000s. + : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000s. + : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 160
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 6,4
Tolerance mm \pm : $\pm 0,2$
MS1 dimension mm : 1,1
Tolerance mm \pm : $+0,15/-0,1$

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 41,4..45,4

Control lever
position YB mm : 40,6..46,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.07.96
Test oil : ISO 4113

Part no. : 0 460 424 097
Pump designation : VE4/12F1300R529

Customer-spec. information
Customer : PERKINS
Motor : T4.40 110TI

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar + : 3

Test Lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 850
Aneroid pressure
hPa : 1200
Setting mm : 1.6
Tolerance mm + : 0.1
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 6.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm3/1000 strokes : 75.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 4.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 61.5
Tolerance
cm3/1000 str. + : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 10.0
Tolerance
cm3/1000 str. + : 2.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1440
Pressure hPa : 1200
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. ± : 2.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. ± : 30.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 950
Aneroid pressure
hPa : 1200

SV travel mm : 2.7
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Aneroid pressure
hPa : 1200

SV travel mm : 0.6
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200

SV travel mm : 3.3
Tolerance mm ± : 0.3
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 8.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1200
Supply pump
pressure bar : 4.8
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1300
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 27.7

Check tolerance
ccm/10s ± : 27.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 700
Aneroid pressure
hPa : 1200
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1440

Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 50.0
Tolerance	
cm ³ /1000 str. +	: 2.0
Check tolerance	
cm ³ /1000S. +	: 6.0
Shutoff solenoid	
Volt	: 24
Rated speed rpm	: 1500
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 30.0
Check tolerance	
cm ³ /1000S. +	: 10.0
Shutoff solenoid	
Volt	: 24
Rated speed rpm	: 1580
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 1.5
Tolerance	
cm ³ /1000 str. +	: 1.5
Check tolerance	
cm ³ /1000S. +	: 1.5
Shutoff solenoid	
Volt	: 24
Rated speed rpm	: 700
Aneroid pressure	
hPa	: 550
Del. quantity	
cm ³ /1000 strokes	: 71.5
Tolerance	
cm ³ /1000 str. +	: 0.5
Check tolerance	
cm ³ /1000S. +	: 3.0
Shutoff solenoid	
Volt	: 24
Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 78.0
Tolerance	
cm ³ /1000 str. +	: 1.5
Check tolerance	
cm ³ /1000S. +	: 3.5
Shutoff solenoid	
Volt	: 24
Rated speed rpm	: 700
Aneroid pressure	
hPa	: 1200

Del. quantity	
cm ³ /1000 strokes	: 75.5
Tolerance	
cm ³ /1000 str. +	: 1.5
Check tolerance	
cm ³ /1000S. +	: 3.5
Shutoff solenoid	
Volt	: 24
Rated speed rpm	: 1000
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 75.5
Tolerance	
cm ³ /1000 str. +	: 0.5
Check tolerance	
cm ³ /1000S. +	: 3.0
Shutoff solenoid	
Volt	: 24

MECHANICAL SHUTOFF

Rated speed rpm	: 1300
Aneroid pressure	
hPa	: 1200
Del. quantity	
cm ³ /1000 strokes	: 1.5
Tolerance	
cm ³ /1000 str. +	: 1.5
Check tolerance	
cm ³ /1000S. +	: 1.5
Shutoff solenoid	
Volt	: 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm	: 300
Del. quantity	
cm ³ /1000 strokes	: 1.5
Tolerance	
cm ³ /1000 str. +	: 1.5
Check tolerance	
cm ³ /1000S. +	: 1.5

FULL-LOAD STGP CONTROL LEVER

Rated speed rpm	: 300
Del. quantity	
cm ³ /1000 strokes	: 1.5
Tolerance	
cm ³ /1000 str. +	: 1.5
Check tolerance	
cm ³ /1000S. +	: 1.5

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

End of test-specification sheet

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : +0,1
Dimension KF mm : 6,4
Tolerance mm + : +0,2
MS1 dimension mm : 1,15
Tolerance mm + : +0,15/-0,1
KSB travel mm : 8,5

CONTROL LEVER POSITION SET

Control lever
position YA mm : 31,5..33,5

Control lever
position YB mm : 47,7..56,3

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.04.96
Test oil : ISO 4113

Part no. : 0 460 484 124
Pump designation : VE4/8F2300R598-8

Customer-spec. information
Customer : RENAULT
Motor : F8Q - 620 DDS
Power KW : 45.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.7
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 5.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 9.5
Tolerance
cm3/1000 str. + : 2.0
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 9.0

Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2450
 Del. quantity
 cm³/1000 strokes : 24.5
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -7.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.7
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 SV travel mm : 6.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600

SV travel mm : 1.2
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 7.7
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Supply pump
 pressure bar : 3.5
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2250
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6
 Check tolerance
 ccm/10s + : 41.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2450
Del. quantity
cm3/1000 strokes : 24.5
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2650
Del. quantity
cm3/1000 strokes : 9.5
Check tolerance
cm3/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2950
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 str. + : 2.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2250
Del. quantity
cm3/1000 strokes : 32.1
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1625
Del. quantity
cm3/1000 strokes : 31.0
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 2000
Del. quantity
cm3/1000 strokes : 32.5

Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 31.9
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 31.5
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -9.5
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -0.7
Tolerance
cm3/1000 str. + : 0.1
Check tolerance
cm3/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 5.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.2
Check
tolerance mm + : 0.3
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 310
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 210
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : +0,1
Dimension KF mm : 5,4
Tolerance mm + : +0,2
Dimension MS mm : 1,3
Tolerance mm + : +0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.96
Test oil : ISO 4113

Part no. : 0 460 484 099
Pump designation : VE4/8F2500R611-1

Customer-spec. information
Customer : PSA
Motor : TUD 5-L3
Power KW : 42.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

B01

Plunger stroke mm : 0,8
Tolerance mm ± : ±0,2
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 5.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 6.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. ± : 1.0
Spread
cm3/1000 strokes : 2.0

Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2200

SV travel mm : 8.3
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

SV travel mm : 1.6
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Supply pump
pressure bar : 4.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2450
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2580
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 2800
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 25.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 15.3
Tolerance
cm³/1000 str. ± : 1.0
Check tolerance
cm³/1000S. ± : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 str. ± : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 52.0
Tolerance
cm³/1000 str. ± : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm ± : ±0,1

Dimension KF mm : 6,0
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,0
Tolerance mm \pm : $\pm 0,2$

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.07.96
Test oil : ISO 4113
Part no. : 0 460 484 100
Pump designation : VE4/8F2500R611-2

Customer-spec. information
Customer : PSA
Motor : TUD5 -L3 ADC
Power KW : 42.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1
Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

B05

Plunger stroke mm : 0,8
Tolerance mm ± : ±0,2
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 5.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 6.3
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 24.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. ± : 1.0
Spread
cm3/1000 strokes : 2.0

Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2200

SV travel mm : 8.3
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 800

SV travel mm : 1.6
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
Supply pump
pressure bar : 8.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Supply pump
pressure bar : 4.6
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2450
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2580
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 5.0

Shutoff solenoid
 Volt : 12

Rated speed rpm : 2800
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2450
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 25.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : 24.0
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 15.3
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 340
 Del. quantity
 cm³/1000 strokes : 22.5
 Tolerance
 cm³/1000 str. + : 10.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 250
 Del. quantity
 cm³/1000 strokes : 52.0
 Tolerance
 cm³/1000 str. + : 17.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
 Tolerance mm + : +0,2

Dimension KF mm : 6,0
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,0
Tolerance mm \pm : $\pm 0,2$

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.11.93
Test oil : ISO 4113
Part no. : 0 460 414 039
Pump designation : VE4/11F1350R257

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8040.25.200+220

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder assembly : 1 688 901 020

Opening pressure bar : 172
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Prestroke

(as of UT) mm : 0,4
Tolerance mm + : +0,02
Check tolerance mm + : +0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Setting mm : 4.0
Tolerance mm + : 0.2
Shutoff solenoid Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure hPa : 1000
Supply pump pressure bar : 6.0
Tolerance bar + : 0.3
Shutoff solenoid Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 93.0
Tolerance cm3/1000 str. + : 0.5
Spread cm3/1000 strokes : 4.0
Check tolerance cm3/1000S. : 5.0
Shutoff solenoid Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 69.0
Tolerance cm3/1000 str. + : 0.5
Shutoff solenoid Volt : 24
Check tolerance cm3/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 350
Del. quantity cm3/1000 strokes : 24.0

Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1500
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
SV travel mm : 6.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24
Rated speed rpm : 800
Aneroid pressure
hPa : 1000
SV travel mm : 2.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7

Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.3
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 800

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 3.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 37.0

Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1600
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 250
 Del. quantity
 cm3/1000 strokes : 79.5
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 90.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 3.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 39.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 93.0

Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 3.5
 Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1350
 Aneroid pressure
 hPa : 1000
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 430
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 400
 Del. quantity
 cm3/1000 strokes : 8.0
 Tolerance
 cm3/1000 str. +- : 5.0
 Shutoff solenoid
 Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 150
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : -
Dimension KF mm : 5,3
Tolerance mm + : +0,02
Dimension MS mm : 1,4
Tolerance mm + : +0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.01.87
Test oil : ISO 4113

Part no. : 0 460 414 047
Pump designation : VE4/11F1200R277

Customer-spec. information
Customer : CASE
Motor : D 268/885

TEST BENCH REQUIREMENTS

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder
assembly : 1 688 901 020

Opening pressure
bar : 172
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800

Setting mm : 5.5
Tolerance mm + : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Supply pump
pressure bar : 4.0
Tolerance bar + : 0.3

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 str. + : 0.5
Spread
cm³/1000 strokes : 3.5

IDLE SETTING

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 str. + : 2.0
Spread
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 3.5

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1260
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. + : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. + : 25.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1150
SV travel mm : 7.9

Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7
 Rated speed rpm : 500
 SV travel mm : 3.0
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1150
 Supply pump
 pressure bar : 5.3
 Tolerance bar +- : 0.3
 Rated speed rpm : 500
 Supply pump
 pressure bar : 2.9
 Tolerance bar +- : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1150
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s +- : 41.6
 Check tolerance
 ccm/10s +- : 41.6
 Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s +- : 22.2
 Check tolerance
 ccm/10s +- : 22.2

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1260
 Del. quantity
 cm³/1000 strokes : 57.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000S. +- : 4.5
 Rated speed rpm : 1370
 Del. quantity
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. +- : 5.0
 Rated speed rpm : 1400

Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5

Rated speed rpm : 1320
 Del. quantity
 cm³/1000 strokes : 25.0
 Tolerance
 cm³/1000 str. +- : 15.0
 Check tolerance
 cm³/1000S. +- : 15.0

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 85.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 3.0

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 77.5
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000S. +- : 3.5

Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 82.0
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 2.5

MECHANICAL SHUTOFF

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 2.0
 Tolerance
 cm³/1000 str. +- : 2.0

Check tolerance
cm³/1000S. \pm : 2.0

START TRANSITION

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 70.0
Tolerance
cm³/1000 str. \pm : 10.0

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 str. \pm : 25.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : \pm 0,1
Dimension KF mm : 5,5
Tolerance mm \pm : \pm 0,2
Dimension MS mm : 1,3
Tolerance mm \pm : \pm 0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 50,1..58,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.08.94
Test oil : ISO 4113

Part no. : 0 460 426 149
Pump designation : VE6/12F1250R373-3

Customer-spec. information
Customer : CDC
Motor : 6 BTA-590

TEST BENCH REQUIREMENTS

Overflow restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder assembly : 1 688 901 027

Opening pressure bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,85
Tolerance mm + : +0,02
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : +0,02
Check tolerance mm + : +0,04

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Aneroid pressure hPa : 1000

Setting mm : 1.6
Tolerance mm + : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Supply pump pressure bar : 3.5
Tolerance bar + : 0.3

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 750
Aneroid pressure hPa : 1000
Del. quantity cm3/1000 strokes : 82.5
Tolerance cm3/1000 str. + : 0.5
Spread cm3/1000 strokes : 4.0
Check tolerance cm3/1000s. : 4.5

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 40.5
Tolerance cm3/1000 str. + : 0.5
Check tolerance cm3/1000s. : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity cm3/1000 strokes : 6.0
Tolerance cm3/1000 str. + : 2.0
Spread cm3/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1300
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. ± : 25.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
SV travel mm : 2.7
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
SV travel mm : 0.8
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.6
Tolerance bar ± : 0.3

Rated speed rpm : 500

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 2.4
Tolerance bar ± : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 41.6

Rated speed rpm : 500
Overflow quantity
ccm/10s : 62.5
Tolerance
ccm/10s ± : 20.8

Check tolerance
ccm/10s ± : 20.8

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1300
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 68.0
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 6.0

Rated speed rpm : 1330
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 35.0
Check tolerance
cm³/1000S. ± : 20.0

Rated speed rpm : 1400
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

Rated speed rpm : 700

Aneroid pressure
hPa : 450
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 4.5

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 3.0

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 str. ± : 4.0

Rated speed rpm : 750
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 2.0

START TRANSITION

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. ± : 20.0

Rated speed rpm : 240
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 str. ± : 25.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm ± : ±0,2
MS1 dimension mm : 1,6
Tolerance mm ± : +0,15/-0,1

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 43,7..48,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.07.96
Test oil : ISO 4113

Part no. : 0 460 494 362
Pump designation : VE4/9F2300R597-1

Customer-spec. information
Customer : VW
Motor : 1,9 L UD A3/B4

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar + : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,8
Tolerance mm + : +0,02
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 750

Setting mm : 4.4
Tolerance mm + : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 5.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 50.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 7.5
Tolerance
cm3/1000 str. + : 0.5

Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. + : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
Pressure hPa : 750
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -5.5
Tolerance
cm³/1000 str. + : 1.0

Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -2.0
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
SV travel mm : 8.3
Tolerance mm + : 0.3
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Aneroid pressure
hPa : 750
SV travel mm : 1.8
Tolerance mm + : 0.3
Check
tolerance mm + : 0.8
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 7.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 750
 Supply pump
 pressure bar : 4.6
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 750
 Overflow quantity
 ccm/10s : 77.7
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 34.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 750
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6

Check tolerance
 ccm/10s + : 55.5
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
 Aneroid pressure
 hPa : 750
 Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Aneroid pressure
 hPa : 750
 Del. quantity
 cm³/1000 strokes : 37.5
 Tolerance
 cm³/1000 str. + : 5.0

Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2750
 Aneroid pressure
 hPa : 750
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 750
 Del. quantity
 cm³/1000 strokes : 43.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 40.2
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 5.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Aneroid pressure
 hPa : 750
 Del. quantity
 cm³/1000 strokes : 50.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 Aneroid pressure
 hPa : 180
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 0.5
 Check tolerance
 cm³/1000S. + : 0.5

Shutoff solenoid
 Volt : 12

Rated speed rpm : 700

Aneroid pressure
 hPa : 300

Del. quantity
 cm³/1000 strokes : 6.0

Tolerance
 cm³/1000 str. +- : 1.0

Check tolerance
 cm³/1000S. +- : 1.0

Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 450

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. +- : 1.5

Check tolerance
 cm³/1000S. +- : 1.5

Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. +- : 1.5

Spread
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. +- : 1.5

Spread
 cm³/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250

Del. quantity
 cm³/1000 strokes : -9.0

Tolerance
 cm³/1000 str. +- : 2.0

Check tolerance
 cm³/1000S. +- : 4.0

Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Del. quantity
 cm³/1000 strokes : -2.0

Tolerance
 cm³/1000 str. +- : 0.1

Check tolerance
 cm³/1000S. +- : 0.1

Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. +- : 1.5

Check tolerance
 cm³/1000S. +- : 1.5

Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250

Supply pump
 pressure bar : -1.2

Tolerance bar +- : 0.2

Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Tolerance mm +- : 0.2

Check
 tolerance mm +- : 0.6

Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000

Aneroid pressure
 hPa : 750

Del. quantity
 cm³/1000 strokes : 35.0

Tolerance
 cm³/1000 str. +- : 1.0

Check tolerance
 cm³/1000S. +- : 3.0

Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. +- : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm +- : +-0,1
Dimension KF mm : 6,0
Tolerance mm +- : +-0,2
Dimension MS mm : 1,2
Tolerance mm +- : +-0,2

MICROSWITCH SET

mm : 0,8...3,0
: ARF 12,0

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,6..41,6

Control lever
position YB mm : 50,4..53,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.94
Test oil : ISO 4113

Part no. : 0 460 494 373
Pump designation : VE4/9F2300R597-4

Customer-spec. information
Customer : VW
Motor : 1,9 L UD A3

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Setting mm : 4.4
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 5.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 50.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 7.5
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 17.0

Tolerance
 cm³/1000 str. ± : 1.0
 Spread
 cm³/1000 strokes : 2.0
 Shutoff solenoid
 Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 17.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
 Pressure hPa : 750
 Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -5.5
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.2

Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -2.0
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 750
 SV travel mm : 8.3
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 750
 SV travel mm : 1.8
 Tolerance mm ± : 0.3
 Check
 tolerance mm ± : 0.8
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 750
 Supply pump
 pressure bar : 7.7
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 750
 Supply pump
 pressure bar : 4.6
 Tolerance bar ± : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 37.5
Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 40.2
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 180
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 0.5
Check tolerance
cm³/1000S. + : 0.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 300
Del. quantity
cm³/1000 strokes : 6.0

Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 1.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF
CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : -9.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : -2.0
Tolerance
cm3/1000 str. + : 0.1
Check tolerance
cm3/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -1.2
Tolerance bar + : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.2
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 35.0
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 str. + : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : +0,1
Dimension KF mm : 6,0
Tolerance mm + : +0,2
Dimension MS mm : 1,2
Tolerance mm + : +0,2

MICROSWITCH SET

mm : 0,8...3,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.08.95
Test oil : ISO 4113

Part no. : 0 460 494 414
Pump designation : VE4/9F2300R597-5

Customer-spec. information

Customer : VW
Motor : 1,9 L UD A3 / B4
Power KW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Setting mm : 4.4
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Supply pump
pressure bar : 5.7
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm3/1000 strokes : 50.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 3.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Check tolerance
cm3/1000S. : 3.0

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 550
Del. quantity
cm3/1000 strokes : 7.5
Tolerance
cm3/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 17.0

Tolerance
 cm3/1000 str. +- : 1.0
 Spread
 cm3/1000 strokes : 2.0
 Shutoff solenoid
 Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 17.0
 Tolerance
 cm3/1000 str. +- : 1.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2600
 Pressure hPa : 750
 Del. quantity
 cm3/1000 strokes : 11.0
 Tolerance
 cm3/1000 str. +- : 2.0
 Shutoff solenoid
 Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm3/1000 strokes : 40.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -5.5
 Tolerance
 cm3/1000 str. +- : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -0.2

Tolerance
 cm3/1000 str. +- : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -2.0
 Tolerance
 cm3/1000 str. +- : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 750
 SV travel mm : 8.3
 Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 0.8
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Aneroid pressure
 hPa : 750
 SV travel mm : 1.8
 Tolerance mm +- : 0.3
 Check
 tolerance mm +- : 0.8
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2100
 Aneroid pressure
 hPa : 750
 Supply pump
 pressure bar : 7.7
 Tolerance bar +- : 0.3
 Shutoff solenoid
 Volt : 12
 Rated speed rpm : 750
 Aneroid pressure
 hPa : 750
 Supply pump
 pressure bar : 4.6
 Tolerance bar +- : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 77.7
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2600
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2400
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 37.5
Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2750
Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 43.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 40.2
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Aneroid pressure
hPa : 750
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 180
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 0.5
Check tolerance
cm³/1000S. + : 0.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 700
Aneroid pressure
hPa : 300
Del. quantity
cm³/1000 strokes : 6.0

Tolerance
 cm3/1000 str. + : 1.0
 Check tolerance
 cm3/1000S. + : 1.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : -9.0
 Tolerance
 cm3/1000 str. + : 2.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250

Del. quantity
 cm3/1000 strokes : -2.0
 Tolerance
 cm3/1000 str. + : 0.1
 Check tolerance
 cm3/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Supply pump
 pressure bar : -1.2
 Tolerance bar + : 0.2
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Tolerance mm + : 0.2
 Check
 tolerance mm + : 0.6
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Aneroid pressure
 hPa : 750
 Del. quantity
 cm3/1000 strokes : 35.0
 Tolerance
 cm3/1000 str. + : 1.0
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 380
 Del. quantity
 cm3/1000 strokes : 41.0

Tolerance
cm³/1000 str. \pm : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 str. \pm : 10.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 6,0
Tolerance mm \pm : $\pm 0,2$
Dimension MS mm : 1,2
Tolerance mm \pm : $\pm 0,2$

CONTROL LEVER POSITION SET

Control Lever
position YA mm : 37,6..41,6

Control Lever
position YB mm : 49,9..53,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.96
Test oil : ISO 4113

Part no. : 0 460 494 404
Pump designation : VE4/9F2150R637-1

Customer-spec. information
Customer : NISSAN-MISA
Motor : GX-3
Power KW : 53.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1200

Setting mm : 3.2
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1200
Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 2150
Del. quantity
cm3/1000 strokes : 44.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 8.5
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000 str. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2500
Del. quantity
cm3/1000 strokes : 15.0
Tolerance
cm3/1000 str. ± : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2150
SV travel mm : 9.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
SV travel mm : 1.2
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2150
Supply pump
pressure bar : 8.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Supply pump
pressure bar : 5.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2150
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6

Check tolerance
ccm/10s + : 41.6

Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 4.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2350
Del. quantity
cm³/1000 strokes : 33.3
Tolerance
cm³/1000 str. + : 4.0
Check tolerance
cm³/1000s. + : 5.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2700
Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000s. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 42.2
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 43.2

Tolerance
cm3/1000 str. \pm : 1.5
Check tolerance
cm3/1000S. \pm : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1800
Del. quantity
cm3/1000 strokes : 44.3
Tolerance
cm3/1000 str. \pm : 1.5
Check tolerance
cm3/1000S. \pm : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 41.0
Tolerance
cm3/1000 str. \pm : 1.5
Check tolerance
cm3/1000S. \pm : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Del. quantity
cm3/1000 strokes : 44.5
Tolerance
cm3/1000 str. \pm : 0.5
Check tolerance
cm3/1000S. \pm : 1.3
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. \pm : 1.5
Check tolerance
cm3/1000S. \pm : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. \pm : 1.5

Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. \pm : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 800
Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 str. \pm : 2.5
Check tolerance
cm3/1000S. \pm : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. \pm : 1.5
Check tolerance
cm3/1000S. \pm : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 str. \pm : 20.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 270
Del. quantity
cm3/1000 strokes : 70.0
Tolerance
cm3/1000 str. \pm : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : $\pm 0,1$
Dimension KF mm : 5,4
Tolerance mm \pm : $\pm 0,2$

Dimension MS mm : 1,2
Tolerance mm \pm : $\pm 0,2$
TLA travel mm : 6,5

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 35,1..39,1

Control lever
position YB mm : 56,9..68,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96
Test oil : ISO 4113

Part no. : D 460 426 152
Pump designation : VE6/12F1250R381

Customer-spec. information
Customer : CDC
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm + : 0,02 (0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check
tolerance mm + : (0,04)

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 3.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 str. + : 0.5
Spread
cm³/1000 strokes : 4.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 345
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1320
 Del. quantity
 cm³/1000 strokes : 47.5
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. + : 30.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 SV travel mm : 5.8
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 SV travel mm : 1.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 5.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.7
 Tolerance bar + : 0.3

Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1250
 Overflow quantity
 ccm/10s : 77.7
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 52.7
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1320
 Del. quantity
 cm³/1000 strokes : 47.5
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000s. + : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1340
 Del. quantity
 cm³/1000 strokes : 35.0
 Check tolerance
 cm³/1000s. + : 20.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000s. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 62.5

Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 750
 Del. quantity
 cm3/1000 strokes : 66.5
 Tolerance
 cm3/1000 str. + : 2.5
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 64.5
 Tolerance
 cm3/1000 str. + : 4.0
 Check tolerance
 cm3/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Del. quantity
 cm3/1000 strokes : 64.0
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 345
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5

Check tolerance
 cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 345
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 2.0
 Tolerance
 cm3/1000 str. + : 2.0
 Check tolerance
 cm3/1000S. + : 2.0
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 50.0
 Tolerance
 cm3/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 270
 Del. quantity
 cm3/1000 strokes : 75.0
 Tolerance
 cm3/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
 Tolerance mm + : 0,2
 Dimension MS mm : 1,2
 Tolerance mm + : 0,1
 SVS dimension mm : 3,6

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 40,7..46,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96
Test oil : ISO 4113

Part no. : 0 460 426 153
Pump designation : VE6/12F1100R381-1

Customer-spec. information
Customer : CDC
Motor : GBT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm ± : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : (0,04)

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm ± : 0.2

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 3.8
Tolerance bar ± : 0.3

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 72.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 4.5

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. ± : 3.0
Spread
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1140
Del. quantity
cm3/1000 strokes : 56.0
Tolerance
cm3/1000 str. ± : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. +- : 30.0

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 SV travel mm : 5.6
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7

Rated speed rpm : 500
 SV travel mm : 1.9
 Tolerance mm +- : 0.4
 Check
 tolerance mm +- : 0.7

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 5.1
 Tolerance bar +- : 0.3

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.7
 Tolerance bar +- : 0.3

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 69.4
 Tolerance
 ccm/10s +- : 27.7

Check tolerance
 ccm/10s +- : 27.7

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 50.0
 Tolerance
 ccm/10s +- : 16.6

Check tolerance
 ccm/10s +- : 16.6

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1140
 Del. quantity
 cm³/1000 strokes : 56.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000s. +- : 6.0

Rated speed rpm : 1160
 Del. quantity
 cm³/1000 strokes : 35.0
 Tolerance
 cm³/1000 str. +- : 15.0
 Check tolerance
 cm³/1000s. +- : 15.0

Rated speed rpm : 1220
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000s. +- : 1.5

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 68.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000s. +- : 3.0

Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 72.5
 Tolerance
 cm³/1000 str. +- : 2.0
 Check tolerance
 cm³/1000s. +- : 4.0

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 54.0
 Tolerance
 cm³/1000 str. +- : 4.0
 Check tolerance
 cm³/1000s. +- : 6.0

Rated speed rpm : 900
 Del. quantity
 cm³/1000 strokes : 72.0
 Tolerance
 cm³/1000 str. +- : 0.5

Check tolerance
cm3/1000S. + : 3.0

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 24

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 24

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 2.0

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm3/1000 strokes : 35.0

Tolerance
cm3/1000 str. + : 15.0

Rated speed rpm : 130
Del. quantity
cm3/1000 strokes : 90.0
Tolerance
cm3/1000 str. + : 30.0

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
MS1 dimension mm : 1,6
Tolerance mm + : 0,1

CONTROL LEVER POSITION SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 41,0..46,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96
Test oil : ISO 4113

Part no. : 0 460 426 154
Pump designation : VE6/12F1100R331-2

Customer-spec. information
Customer : CDC
Motor : 6 BT -5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm + : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check
tolerance mm + : (0,04)

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 3.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 62.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 4.5
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. + : 1.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
 Del. quantity
 cm3/1000 strokes : 42.0
 Tolerance
 cm3/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm3/1000 strokes : 90.0
 Tolerance
 cm3/1000 str. + : 25.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 SV travel mm : 6.0
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 SV travel mm : 1.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 5.1
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.7
 Tolerance bar + : 0.3

Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 69.4
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 50.0
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
 Del. quantity
 cm3/1000 strokes : 42.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000s. + : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000s. + : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1170
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 str. + : 20.0
 Check tolerance
 cm3/1000s. + : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1100

Del. quantity
cm³/1000 strokes : 60.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 61.5
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 57.0
Tolerance
cm³/1000 str. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 62.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5

Check tolerance
cm³/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
Dimension MS mm : 1,4
Tolerance mm + : 0,1
SVS dimension mm : 3,6

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 34,8..38,8

Control Lever
position YB mm : 41,5..47,1

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96
Test oil : ISO 4113

Part no. : 0 460 426 155
Pump designation : VES/12F1050R381-3

Customer-spec. information
Customer : CDC
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm + : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm + : 0,02
Check
tolerance mm + : (0,04)

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750

Setting mm : 3.6
Tolerance mm + : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 4.0
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 73.5
Tolerance
cm3/1000 str. + : 0.5
Spread
cm3/1000 strokes : 4.5
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. + : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
SV travel mm : 5.4
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
SV travel mm : 1.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
Supply pump
pressure bar : 5.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Supply pump
pressure bar : 2.9
Tolerance bar + : 0.3

Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1050
Overflow quantity
ccm/10s : 69.4
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Overflow quantity
ccm/10s : 50.0
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 16.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 55.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1130
Del. quantity
cm³/1000 strokes : 30.0
Check tolerance
cm³/1000s. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000s. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 70.0

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 73.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 57.0
Tolerance
cm3/1000 str. + : 4.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 73.5
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 1050
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5

Check tolerance
cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 450
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 2.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 240
Del. quantity
cm3/1000 strokes : 45.0
Tolerance
cm3/1000 str. + : 15.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 130
Del. quantity
cm3/1000 strokes : 100.0
Tolerance
cm3/1000 str. + : 30.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
MS1 dimension mm : 1,6
Tolerance mm + : 0,1
SVS dimension mm : 3,6

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 40,7..46,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96
Test oil : ISO 4113

Part no. : 0 460 426 156
Pump designation : VE6/12F1100R381-4

Customer-spec. information
Customer : CDC
Motor : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar ± : 3

Test Lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm ± : 0,02(0,06)
Outlet : 0

Prestroke

(as of UT) mm : 0,3
Tolerance mm ± : 0,02
Check
tolerance mm ± : (0,04)

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 900
Setting mm : 4.4
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 900
Supply pump
pressure bar : 5.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 67.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 4.5
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000s. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
 Del. quantity
 cm3/1000 strokes : 47.5
 Tolerance
 cm3/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm3/1000 strokes : 110.0
 Tolerance
 cm3/1000 str. + : 40.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 SV travel mm : 5.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 SV travel mm : 3.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 5.8
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 750
 Supply pump
 pressure bar : 4.3
 Tolerance bar + : 0.3

Shutoff solenoid
 Volt : 24
 Rated speed rpm : 500
 Supply pump
 pressure bar : 3.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 69.4
 Tolerance
 ccm/10s + : 27.7
 Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 55.5
 Tolerance
 ccm/10s + : 16.6
 Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
 Del. quantity
 cm3/1000 strokes : 47.5
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000s. + : 8.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1170
 Del. quantity
 cm3/1000 strokes : 30.0
 Check tolerance
 cm3/1000s. + : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1240
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5

Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 66.0
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 83.5
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 87.0
Tolerance
cm3/1000 str. +- : 4.0
Check tolerance
cm3/1000S. +- : 6.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Del. quantity
cm3/1000 strokes : 67.5
Tolerance
cm3/1000 str. +- : 0.5
Check tolerance
cm3/1000S. +- : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1100
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 400
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. +- : 1.5
Check tolerance
cm3/1000S. +- : 1.5

IDLE DELIVER

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 str. +- : 2.0
Check tolerance
cm3/1000S. +- : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 250
Del. quantity
cm3/1000 strokes : 85.0
Tolerance
cm3/1000 str. +- : 15.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 str. +- : 40.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm \pm : 0,02
MS1 dimension mm : 1,8
Tolerance mm \pm : 0,1
SVS dimension mm : 4,4

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 41,6..47,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.09.96
Test oil : ISO 4113

Part no. : 0 460 426 157
Pump designation : VE6/12F1050R381+5

Customer-spec. information
Customer : CDC
Motor : 6 BT -5.9 IND.

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C +- : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar +- : 0.05

Test nozzle holde
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar +- : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 1,5
Tolerance mm +- : 0,02(0,06)
Outlet : D

Prestroke

(as of UT) mm : 0,3
Tolerance mm +- : 0,02
Check
tolerance mm +- : (0,04)

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 750
Setting mm : 3.6
Tolerance mm +- : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 750
Supply pump
pressure bar : 3.8
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 63.0
Tolerance
cm3/1000 str. +- : 0.5
Spread
cm3/1000 strokes : 4.0
Shutoff solenoid
Volt : 24

IDLE SETTING

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 11.0
Tolerance
cm3/1000 str. +- : 1.0
Shutoff solenoid
Volt : 24
Spread
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 49.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Shutoff solenoid
 Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1050
 SV travel mm : 5.4
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 SV travel mm : 1.6
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1050
 Supply pump
 pressure bar : 5.1
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Supply pump
 pressure bar : 2.7
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 1050
 Overflow quantity
 ccm/10s : 69.4
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 50.0
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1100
 Del. quantity
 cm³/1000 strokes : 49.0
 Tolerance
 cm³/1000 str. ± : 3.0
 Check tolerance
 cm³/1000s. ± : 6.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1130
 Del. quantity
 cm³/1000 strokes : 25.0
 Tolerance
 cm³/1000 str. ± : 20.0
 Check tolerance
 cm³/1000s. ± : 20.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 1050

Del. quantity
cm3/1000 strokes : 61.0
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 900
Del. quantity
cm3/1000 strokes : 62.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.5
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. + : 4.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 63.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1050
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5

Check tolerance
cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 2.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 2.0
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm3/1000 strokes : 55.0
Tolerance
cm3/1000 str. + : 10.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm3/1000 strokes : 95.0
Tolerance
cm3/1000 str. + : 25.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension KF mm : 5,2
Tolerance mm + : 0,2
Dimension MS mm : 1,4
Tolerance mm + : 0,1
SVS dimension mm : 3,6

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 34,8..38,8

Control lever
position YB mm : 39,9..45,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.06.95
Test oil : ISO 4113
Part no. : 0 460 485 025
Pump designation : VE5/8F2100L633

Customer-spec. information
Customer : VW
Motor : 2,4L SD f. T4
Power KW : 57.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. +- : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. +- : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm +- : 0.4
Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
SV travel mm : 1.6
Tolerance mm +- : 0.4

Check
tolerance mm +- : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar +- : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s +- : 41.6

Check tolerance
ccm/10s +- : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s +- : 22.2

Check tolerance
ccm/10s +- : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. +- : 2.0
Check tolerance
cm³/1000s. +- : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 22.0

Tolerance
 cm3/1000 str. +- : 5.0
 Check tolerance
 cm3/1000S. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2600
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 30.0
 Tolerance
 cm3/1000 str. +- : 1.0
 Check tolerance
 cm3/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 33.8
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 36.0
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.2
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5

Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -10.5
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -1.2
 Tolerance
 cm3/1000 str. +- : 0.1
 Check tolerance
 cm3/1000S. +- : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar \pm : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm \pm : 0.2
Check
tolerance mm \pm : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : 0,1
Dimension KF mm : 5,8
Tolerance mm \pm : 0,1
Dimension MS mm : 1,4
Tolerance mm \pm : 0,1

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 38,5..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.96
Test oil : ISO 4113

Part no. : 0 460 485 036
Pump designation : VE5/8F2100L750

Customer-spec. information

Customer : VW
Motor : 2,4L SD
Power kW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 465
Del. quantity
cm³/1000 strokes : 8.0

Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 12.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 55.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -7.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm³/1000 strokes : -1.2
 Tolerance
 cm³/1000 str. + : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
 SV travel mm : 6.3
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.6
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
 Supply pump
 pressure bar : 8.1
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Supply pump
 pressure bar : 6.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s + : 41.6
 Check tolerance
 ccm/10s + : 55.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 str. + : 5.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1850
Del. quantity
cm3/1000 strokes : 33.0
Tolerance
cm3/1000 str. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 33.8

Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -10.5
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : -1.2
Tolerance
cm3/1000 str. + : 0.1
Check tolerance
cm3/1000S. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar + : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm + : 0.2
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm3/1000 strokes : 27.0
Tolerance
cm3/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm3/1000 strokes : 60.0
Tolerance
cm3/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm + : 0,1
Dimension KF mm : 5,8
Tolerance mm + : 0,2
Dimension MS mm : 1,4
Tolerance mm + : 0,1

POTENTIOMETER
SET

1. measurement
voltage Volt : 5,0
1. measurement
voltage Volt : 0,7 V

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 32,8..34,8
Control lever
position YB mm : 61,5..68,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.96
Test oil : ISO 4113

Part no. : 0 460 485 037
Pump designation : VE5/8F2100L752

Customer-spec. information
Customer : VW
Motor : 2,4L SD f. T4
Power kW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 540
Del. quantity
cm³/1000 strokes : 7.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 415
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 8.0

Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. + : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. + : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100

SV travel mm : 1.6
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 41.6
Check tolerance
ccm/10s + : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. + : 2.0
Check tolerance
cm3/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm3/1000 strokes : 22.0
Tolerance
cm3/1000 str. + : 5.0
Check tolerance
cm3/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2600
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2100
Del. quantity
cm3/1000 strokes : 30.0
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 33.8
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

Del. quantity
cm3/1000 strokes : 36.0
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.2
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

RESIDUAL QUANTITY

Rated speed rpm : 490
Del. quantity
cm3/1000 strokes : 7.8
Tolerance
cm3/1000 str. + : 1.0
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -10.5
Tolerance
cm³/1000 str. +- : 3.0
Check tolerance
cm³/1000S. +- : 4.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. +- : 0.1
Check tolerance
cm³/1000S. +- : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. +- : 1.5
Check tolerance
cm³/1000S. +- : 1.5
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar +- : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm +- : 0.2
Check
tolerance mm +- : 0.6
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 380
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 str. +- : 10.0

Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. +- : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm +- : 0,1
Dimension KF mm : 5,8
Tolerance mm +- : 0,2
Dimension MS mm : 1,4
Tolerance mm +- : 0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 37,2..39,2

Control lever
position YB mm : 38,5..49,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96
Test oil : ISO 4113

Part no. : 0 460 414 123
Pump designation : VE4/11F2000R624-1

Customer-spec. information
Customer : FORD
Motor : 2.5L-DI
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,52
Tolerance mm ± : 0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.7
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 36.0
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. ± : 0.5
Tolerance
cm3/1000 str. ± : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 10.5
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 SV travel mm : 6.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 1.5
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 9.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Supply pump
 pressure bar : 5.7
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Supply pump
 pressure bar : 7.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s + : 34.7

Check tolerance
 ccm/10s + : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000s. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm³/1000 strokes : 12.0
 Check tolerance
 cm³/1000s. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 2.5

Tolerance
 cm³/1000 str. +- : 2.5
 Check tolerance
 cm³/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Aneroid pressure
 hPa :

LDA/
 HBA stroke mm : 7.2

Rated speed rpm : 1950
 Del. quantity
 cm³/1000 strokes : 41.5
 Tolerance
 cm³/1000 str. +- : 1.2
 Check tolerance
 cm³/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700
 Del. quantity
 cm³/1000 strokes : 40.0
 Tolerance
 cm³/1000 str. +- : 1.2
 Check tolerance
 cm³/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 28.5
 Tolerance
 cm³/1000 str. +- : 0.2
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Check tolerance
 cm³/1000S. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. +- : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 550
 Del. quantity
 cm³/1000 strokes : 3.0
 Tolerance
 cm³/1000 str. +- : 3.0
 Check tolerance
 cm³/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : 22.5
 Tolerance
 cm³/1000 str. +- : 0.5
 Check tolerance
 cm³/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 480
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 str. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm³/1000 strokes : 48.0
 Tolerance
 cm³/1000 str. +- : 15.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7.2

Dimension K mm : 2,8

Tolerance mm \pm : 0,1

Dimension KF mm : 8,4

Tolerance mm \pm : 0,2

Dimension MS mm : 1,8

Tolerance mm \pm : 0,2

MICROSWITCH

SET

: ARF 20,0

CONTROL LEVER POSITION

SET

Control lever

position YA mm : 41.0..43.5

Control lever

position YB mm : 63.0..73,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.11.96
Test oil : ISO 4113

Part no. : 0 460 414 139
Pump designation : VE4/11F2000R624-3

Customer-spec. information
Customer : FORD
Motor : 2.5L-DI
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C + : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,52
Tolerance mm + : 0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 2.7
Tolerance mm + : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 7.4
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 36.0
Del. quantity
cm3/1000 strokes : 28.5
Tolerance
cm3/1000 str. + : 0.5
Tolerance
cm3/1000 str. + : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 10.5
Tolerance
cm3/1000 str. + : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 45.0
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 SV travel mm : 6.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 1.5
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 9.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Supply pump
 pressure bar : 5.7
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Supply pump
 pressure bar : 7.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s + : 34.7

Check tolerance
 ccm/10s + : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000s. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm³/1000 strokes : 12.0
 Check tolerance
 cm³/1000s. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 2.5

Tolerance
 cm3/1000 str. + : 2.5
 Check tolerance
 cm3/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

Aneroid pressure
 hPa :

LDA/
 HBA stroke mm : 7.2

Rated speed rpm : 1950
 Del. quantity
 cm3/1000 strokes : 41.5
 Tolerance
 cm3/1000 str. + : 1.2
 Check tolerance
 cm3/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700
 Del. quantity
 cm3/1000 strokes : 40.0
 Tolerance
 cm3/1000 str. + : 1.2
 Check tolerance
 cm3/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 28.5
 Tolerance
 cm3/1000 str. + : 0.2
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 550
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 22.5
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 480
 Del. quantity
 cm3/1000 strokes : 26.0
 Tolerance
 cm3/1000 str. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm3/1000 strokes : 48.0
 Tolerance
 cm3/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HEA stroke mm : 7.2

Dimension K mm : 2,8

Tolerance mm \pm : 0,1

Dimension KF mm : 8,4

Tolerance mm \pm : 0,2

Dimension MS mm : 1,8

Tolerance mm \pm : 0,2

MICROSWITCH

SET

: ARF 20,0

CONTROL LEVER POSITION

SET

Control lever

position YA mm : 41,0..44,0

Control lever

position YB mm : 63,0..75,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.11.96
Test oil : ISO 4113
Part no. : 0 460 426 254
Pump designation : VE6/12F1250R671

Customer-spec. information
Customer : CUMMINS
Motor : 6 BTAA
Power KW : 96.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 109

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

025

Plunger stroke mm : 1,3
Tolerance mm ± : 0,02(0,06)
Outlet : D

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000

Setting mm : 1.8
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 850
Aneroid pressure
hPa : 1000
Del. quantity
cm3/1000 strokes : 83.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. : 5.0
Shutoff solenoid
Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 61.0
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 5.0
Shutoff solenoid
Volt : 24
Check tolerance
cm3/1000S. : 6.0

Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 370
Del. quantity
cm³/1000 strokes : 9.5
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 24
Spread
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 7.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1400
Pressure hPa : 1000
Del. quantity
cm³/1000 strokes : 36.5
Tolerance
cm³/1000 str. + : 3.0
Shutoff solenoid
Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 85.0
Tolerance
cm³/1000 str. + : 15.0
Shutoff solenoid
Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
SV travel mm : 2.3
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

SV travel mm : 1.0
Tolerance mm + : 0.6
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 24

Rated speed rpm : 450
SV travel mm : 2.1
Tolerance mm + : 0.5
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

Rated speed rpm : 500
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 4.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 59.7
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 24

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 83.3

Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7

Shutoff solenoid
Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1400

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 36.5

Tolerance
cm3/1000 str. + : 3.0

Check tolerance
cm3/1000S. + : 8.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 1445

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 17.0

Check tolerance
cm3/1000S. + : 15.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 1500

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 1.5

Tolerance
cm3/1000 str. + : 1.5

Check tolerance
cm3/1000S. + : 1.5

Shutoff solenoid
Volt : 24

Rated speed rpm : 600

Aneroid pressure
hPa : 300

Del. quantity
cm3/1000 strokes : 72.0

Tolerance
cm3/1000 str. + : 0.5

Check tolerance
cm3/1000S. + : 4.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 86.0

Tolerance
cm3/1000 str. + : 2.0

Check tolerance
cm3/1000S. + : 3.5

Shutoff solenoid
Volt : 24

Rated speed rpm : 500

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 92.0

Tolerance
cm3/1000 str. + : 5.0

Shutoff solenoid
Volt : 24

Rated speed rpm : 850

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 83.0

Tolerance
cm3/1000 str. + : 0.5

Check tolerance
cm3/1000S. + : 3.0

Shutoff solenoid
Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm3/1000 strokes : 1.5

Tolerance
cm3/1000 str. + : 1.5

Check tolerance
cm3/1000S. + : 1.5

Shutoff solenoid
Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 300

Del. quantity
cm3/1000 strokes : 1.5

Tolerance
cm3/1000 str. + : 1.5

Check tolerance
cm3/1000S. + : 1.5

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 410
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Shutoff solenoid
Volt : 24

START TRANSITION

Rated speed rpm : 220
Del. quantity
cm3/1000 strokes : 75.0
Tolerance
cm3/1000 str. + : 25.0
Shutoff solenoid
Volt : 24

Rated speed rpm : 130
Del. quantity
cm3/1000 strokes : 100.0
Tolerance
cm3/1000 str. + : 20.0
Shutoff solenoid
Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : KOT
MS1 dimension mm : 1,1
Tolerance mm + : 0,1

CONTROL LEVER POSITION SET

Control Lever
position YA mm : 34,8..38,8

Control Lever
position YB mm : 43,0..48,6

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.96
Test oil : ISO 4113

Part no. : 0 460 484 113
Pump designation : VE4/8F2300R691

Customer-spec. information
Customer : FIAT-AUTO
Motor : M708HT17..T-soft
Power KW : 48.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

E01

Plunger stroke mm : 0,9
Outlet : A

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500

Setting mm : 4.9
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500

Supply pump
pressure bar : 5.9
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1500

Del. quantity
cm3/1000 strokes : 35.2
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

IDLE SETTING

Rated speed rpm : 450

Del. quantity
cm3/1000 strokes : 12.6
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 2.5
Check tolerance
cm3/1000S. : 2.5

KSB/AFB Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 31.6
 Tolerance
 cm³/1000 str. + : 3.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 50.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 SV travel mm : 7.9
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 900
 SV travel mm : 1.1
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 450
 SV travel mm : 1.8
 Tolerance mm + : 1.5

Check
 tolerance mm + : 2.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 700
 SV travel mm : 2.5
 Tolerance mm + : 1.5
 Check
 tolerance mm + : 2.0
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 7.4
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 900
 Supply pump
 pressure bar : 4.1
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
 Overflow quantity
 ccm/10s : 86.1
 Tolerance
 ccm/10s + : 27.7
 Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12
 Rated speed rpm : 700
 Overflow quantity
 ccm/10s : 58.3
 Tolerance
 ccm/10s + : 16.6
 Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 12

KSB/AFB Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 31.6
Tolerance
cm³/1000 str. ± : 3.0
Check tolerance
cm³/1000S. ± : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2700
Del. quantity
cm³/1000 strokes : 8.3
Check tolerance
cm³/1000S. ± : 5.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2900
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 38.7
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 2.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 34.6
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 2.3
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : 35.2
Tolerance
cm³/1000 str. ± : 0.5
Check tolerance
cm³/1000S. ± : 2.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

KSB/AFB Volt : 12

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. ± : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. ± : 1.5
Spread
cm³/1000 strokes : 5.0

KSB/AFB Volt : 12

IDLE DELIVERY

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 2.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000S. ± : 2.0
Shutoff solenoid
Volt : 12

KSB/AFB Volt : 12

Rated speed rpm : 400
 Del. quantity
 cm³/1000 strokes : 22.6
 Tolerance
 cm³/1000 str. +- : 2.5
 Check tolerance
 cm³/1000s. +- : 4.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 9.3
 Tolerance
 cm³/1000 str. +- : 1.0
 Check tolerance
 cm³/1000s. +- : 2.5
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

START TRANSITION

Rated speed rpm : 575
 Del. quantity
 cm³/1000 strokes : 34.0
 Tolerance
 cm³/1000 str. +- : 10.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 58.0
 Tolerance
 cm³/1000 str. +- : 10.0
 Shutoff solenoid
 Volt : 12
 KSB/AFB Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
 Tolerance mm +- : 0,1
 Dimension KF mm : 6,0

Tolerance mm +- : 0,2
 Dimension MS mm : 1,3
 Tolerance mm +- : 0,2

POTENTIOMETER SET

1. measurement
 voltage Volt : 5,0
 1. measurement
 voltage Volt : 1,41+-0,02
 2. measurement
 voltage Volt : ARF 12,0

CONTROL LEVER POSITION SET

Control lever
 position YA mm : 38,1..40,1
 Control lever
 position YB mm : 38,4..46,4

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.96
Test oil : ISO 4113

Part no. : 0 460 414 141
Pump designation : VE4/11F2000R686

Customer-spec. information

Customer : FORD
Motor : 2.5L-DI 70 PS
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil return

temperature °C : 45
Tolerance °C ± : 1

Overflow restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder assembly : 1 688 901 114

Opening pressure bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

E05

Plunger stroke mm : 0,35
Tolerance mm ± : 0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 2.7
Tolerance mm ± : 0.1
Shutoff solenoid Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1150
Rated speed rpm : 500
Del. quantity cm3/1000 strokes : 35.8
Del. quantity cm3/1000 strokes : 31.2
Tolerance cm3/1000 str. ± : 0.5
Tolerance cm3/1000 str. ± : 0.2
Spread cm3/1000 strokes : 3.0
Shutoff solenoid Volt : 12
Shutoff solenoid Volt : 12
Check tolerance cm3/1000S. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity cm3/1000 strokes : 7.8
Tolerance cm3/1000 str. ± : 1.0
Shutoff solenoid Volt : 12
Spread cm3/1000 strokes : 3.0
Check tolerance cm3/1000S. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 31.5
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 48.2
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 SV travel mm : 6.4
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 1.5
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 9.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Supply pump
 pressure bar : 5.7
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Supply pump
 pressure bar : 7.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s + : 16.6

Check tolerance
 ccm/10s + : 16.6
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s + : 27.7

Check tolerance
 ccm/10s + : 27.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 31.5
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000s. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2300
 Del. quantity
 cm³/1000 strokes : 18.4
 Check tolerance
 cm³/1000s. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2400
 Del. quantity
 cm³/1000 strokes : 2.5

Tolerance
 cm3/1000 str. +- : 2.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Aneroid pressure
 hPa :

LDA/
 HBA stroke mm : 7,7

Rated speed rpm : 1950
 Del. quantity
 cm3/1000 strokes : 43.8
 Tolerance
 cm3/1000 str. +- : 1.2
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1700
 Del. quantity
 cm3/1000 strokes : 41.0
 Tolerance
 cm3/1000 str. +- : 1.2
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Del. quantity
 cm3/1000 strokes : 31.2
 Tolerance
 cm3/1000 str. +- : 0.2
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. +- : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 475
 Del. quantity
 cm3/1000 strokes : 3.8
 Tolerance
 cm3/1000 str. +- : 3.0
 Check tolerance
 cm3/1000S. +- : 3.0
 Shutoff solenoid
 Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 26.5
 Tolerance
 cm3/1000 str. +- : 0.5
 Check tolerance
 cm3/1000S. +- : 2.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 480
 Del. quantity
 cm3/1000 strokes : 28.6
 Tolerance
 cm3/1000 str. +- : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 300
 Del. quantity
 cm3/1000 strokes : 45.2
 Tolerance
 cm3/1000 str. +- : 15.0
 Shutoff solenoid
 Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/

HBA stroke mm : 7,7
Dimension K mm : 2,8
Tolerance mm \pm : 0,1
Dimension KF mm : 8,4
Tolerance mm \pm : 0,2
Dimension MS mm : 1,8
Tolerance mm \pm : 0,2

MICROSWITCH
SET

: ARF 20,0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 42,8..45,8

Control lever
position YB mm : 65,5..75,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.96
Test oil : ISO 4113

Part no. : 0 460 485 035
Pump designation : VE5/8F2100L746

Customer-spec. information
Customer : VW
Motor : 2.4L SD
Power KW : 55.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 000

Opening pressure
bar : 147
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1500
Setting mm : 4.3
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1500
Supply pump
pressure bar : 7.4
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 36.5
Tolerance
cm3/1000 str. ± : 0.5
Spread
cm3/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

IDLE SETTING

Rated speed rpm : 415
Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 3.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2400
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 str. ± : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. ± : 25.0
Shutoff solenoid
Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -0.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Del. quantity
cm³/1000 strokes : -1.2
Tolerance
cm³/1000 str. ± : 0.1
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1790
SV travel mm : 6.3
Tolerance mm ± : 0.4
Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
SV travel mm : 1.6
Tolerance mm ± : 0.4

Check
tolerance mm ± : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1790
Supply pump
pressure bar : 8.1
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1100
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2100
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s ± : 41.6

Check tolerance
ccm/10s ± : 55.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Overflow quantity
ccm/10s : 63.8
Tolerance
ccm/10s ± : 22.2

Check tolerance
ccm/10s ± : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2400
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. ± : 2.0
Check tolerance
cm³/1000s. ± : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2300
Del. quantity
cm³/1000 strokes : 22.0

Tolerance
 cm3/1000 str. + : 5.0
 Check tolerance
 cm3/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2600
 Del. quantity
 cm3/1000 strokes : 3.0
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2100
 Del. quantity
 cm3/1000 strokes : 30.5
 Tolerance
 cm3/1000 str. + : 1.0
 Check tolerance
 cm3/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 600
 Del. quantity
 cm3/1000 strokes : 34.8
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1250
 Del. quantity
 cm3/1000 strokes : 36.5
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 2.2
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5

Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 415
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

CHECKING LOAD-DEPENDENT
 START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -10.5
 Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : -1.2
 Tolerance
 cm3/1000 str. + : 0.1
 Check tolerance
 cm3/1000S. + : 0.1
 Shutoff solenoid
 Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1500
Supply pump
pressure bar : -1.0
Tolerance bar \pm : 0.2
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1500
Tolerance mm \pm : 0.2
Check
tolerance mm \pm : 0.6
Shutoff solenoid
Volt : 12

Rated speed rpm : 180
Del. quantity
cm³/1000 strokes : 60.0
Tolerance
cm³/1000 str. \pm : 25.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,3
Tolerance mm \pm : 0,1
Dimension KF mm : 5,8
Tolerance mm \pm : 0,2
Dimension MS mm : 1,4
Tolerance mm \pm : 0,2

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.96
Test oil : ISO 4113

Part no. : 0 460 484 135
Pump designation : VE4/8F2300R425-17

Customer-spec. information
Customer : PSA
Motor : XUD9AY-L3 Cit.ZX
Power KW : 51.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 022

Opening pressure
bar : 130
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.5
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 6.0
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 30.2
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HOUSING-FIXED IDLE SPRING RESIDUAL QUANTITY SETTING

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12

IDLE DELIVERY

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 str. ± : 1.0
Spread
cm³/1000 strokes : 2.0
Shutoff solenoid
Volt : 12

HIGH IDLE SETTING

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 9.5

Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2650
 Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 str. ± : 2.0
 Shutoff solenoid
 Volt : 12

SET GRADUATED STARTING DELIVERY CONTROL LEVER, IDLE STOP

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 47.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

LOAD-DEPENDENT START OF DELIVERY SETTING

DELIVERY DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -6.0
 Tolerance
 cm³/1000 str. ± : 1.0
 Shutoff solenoid
 Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -0.2
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
 Del. quantity
 cm³/1000 strokes : -1.0
 Tolerance
 cm³/1000 str. ± : 0.1
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 SV travel mm : 7.6
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800

SV travel mm : 0.8
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2200
 Supply pump
 pressure bar : 8.5
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Supply pump
 pressure bar : 3.6
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 2200
 Overflow quantity
 ccm/10s : 97.2
 Tolerance
 ccm/10s ± : 41.6
 Check tolerance
 ccm/10s ± : 55.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 63.8
 Tolerance
 ccm/10s ± : 22.2

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2650
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2500
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2900
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 31.3
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 30.2
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.2
Shutoff solenoid
Volt : 12

MECHANICAL SHUTOFF

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5

CHECKING LOAD-DEPENDENT START OF DELIVERY

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -7.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : -1.0

Tolerance
cm³/1000 str. + : 0.1
Check tolerance
cm³/1000s. + : 0.1
Shutoff solenoid
Volt : 12

DELIVERY DIFFERENCE

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 5.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 3.0
Shutoff solenoid
Volt : 12

PRESSURE DIFFERENCE

Rated speed rpm : 1250
Supply pump
pressure bar : -1.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

TIMING-DEVICE TRAVEL DIFFERENCE

Rated speed rpm : 1250
Tolerance mm + : 0.5
Check
tolerance mm + : 0.6
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 21.4
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000s. + : 4.0
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 225
Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 str. + : 17.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : 6,0
Tolerance mm + : 0,2
Dimension MS mm : 1,4
Tolerance mm + : 0,1

MICROSWITCH SET

mm : 0,6
: ARF 12,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.08.96
Test oil : ISO 4113
Part no. : 0 460 424 110
Pump designation : VE4/12F1350R621

Customer-spec. information

Customer : IVECO-FIAT
Motor : 8040.45.5200
Power KW : 100.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 55
Tolerance °C + : 1

Overflow
restriction mm : 0.55

Inlet press. bar : 0.35
Tolerance bar + : 0.05

Test nozzle holder
assembly : 1 688 901 027

Opening pressure
bar : 250
Tolerance bar + : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Setting mm : 1.5
Tolerance mm + : 0.1
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

SUPPLY PUMP PRESSURE

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 6.5
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 700
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 78.9
Tolerance
cm³/1000 str. + : 0.5
Spread
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 24
KSB/AFB Volt : 24

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 50.5
Tolerance
cm³/1000 str. + : 0.5
Shutoff solenoid
Volt : 24
Check tolerance
cm³/1000S. : 5.0
KSB/AFB Volt : 24

IDLE SETTING

Rated speed rpm : 350
 Del. quantity
 cm³/1000 strokes : 13.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. : 5.0
 KSB/AFB Volt : 24

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1500
 Pressure hPa : 1000
 Del. quantity
 cm³/1000 strokes : 44.0
 Tolerance
 cm³/1000 str. + : 2.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 85.0
 Tolerance
 cm³/1000 str. + : 15.0
 Shutoff solenoid
 Volt : 24
 KSB/AFB Volt : 24

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 SV travel mm : 2.8
 Tolerance mm + : 0.3
 Check
 tolerance mm + : 0.7
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24
 Setting point KSB
 Rated speed rpm : 340
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.0
 Tolerance mm + : 1.0
 Check
 tolerance mm + : 1.0
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000
 SV travel mm : 3.2
 Tolerance mm + : 0.5
 Check
 tolerance mm + : 0.5
 Shutoff solenoid
 Volt : 24

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.0
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 600
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 4.3
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 450
 Aneroid pressure
 hPa : 1000
 Supply pump
 pressure bar : 7.3
 Tolerance bar + : 0.5
 Shutoff solenoid
 Volt : 24

Rated speed rpm : 340

Aneroid pressure
hPa : 1000
Supply pump
pressure bar : 7.0
Tolerance bar + : 0.5
Shutoff solenoid
Volt : 24

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 55.5
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 16.6
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Overflow quantity
ccm/10s : 86.1
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1500
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1425
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 69.8

Tolerance
cm³/1000 str. + : 5.0
Check tolerance
cm³/1000S. + : 6.5
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 400
Del. quantity
cm³/1000 strokes : 66.7
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 4.0
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 1350
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 81.4
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5

Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 700

Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 78.9

Tolerance
 cm³/1000 str. + : 0.5

Check tolerance
 cm³/1000S. + : 3.5

Shutoff solenoid
 Volt : 24

MECHANICAL SHUTOFF

Rated speed rpm : 1350

Aneroid pressure
 hPa : 1000

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. + : 1.5

Spread
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. + : 1.5

Spread
 cm³/1000 strokes : 5.0

Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 350

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. + : 1.5

Check tolerance
 cm³/1000S. + : 1.5

Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 350

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. + : 1.5

Spread
 cm³/1000 strokes : 5.0

Check tolerance
 cm³/1000S. + : 1.5

Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 425

Del. quantity
 cm³/1000 strokes : 1.5

Tolerance
 cm³/1000 str. + : 1.5

Check tolerance
 cm³/1000S. + : 1.5

Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

START TRANSITION

Rated speed rpm : 250

Del. quantity
 cm³/1000 strokes : 53.5

Tolerance
 cm³/1000 str. + : 10.0

Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

Rated speed rpm : 130

Del. quantity
 cm³/1000 strokes : 85.0

Tolerance
 cm³/1000 str. + : 15.0

Shutoff solenoid
 Volt : 24

KSB/AFB Volt : 24

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,6

Tolerance mm + : 0,1

Dimension KF mm : 6,4

Tolerance mm + : 0,2

MS1 dimension mm : 1,3

Tolerance mm + : 0,2

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 37,9..39,9

Control lever
position YB mm : 41,7..46,9

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.96
Test oil : ISO 4113
Part no. : 0 460 414 145
Pump designation : VE4/11F2000R686-2

Customer-spec. information
Customer : FORD
Motor : 2.5L DI
Power KW : 56.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 688 901 114

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,35
Tolerance mm ± : 0.05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250
Setting mm : 3.2
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 35.7
Del. quantity
cm3/1000 strokes : 30.6
Tolerance
cm3/1000 str. ± : 0.5
Tolerance
cm3/1000 str. ± : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000s. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 8.3
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 str. + : 1.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 52.5
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
SV travel mm : 5.7
Tolerance mm + : 0.4
Check
tolerance mm + : 0.9
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
SV travel mm : 2.1
Tolerance mm + : 0.4
Check
tolerance mm + : 0.9
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
Supply pump
pressure bar : 9.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 500

Supply pump
pressure bar : 5.8
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 1000
Supply pump
pressure bar : 6.9
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
Overflow quantity
ccm/10s : 119.4
Tolerance
ccm/10s + : 22.2

Check tolerance
ccm/10s + : 22.2
Shutoff solenoid
Volt : 12

Rated speed rpm : 1950
Overflow quantity
ccm/10s : 150.0
Tolerance
ccm/10s + : 34.7

Check tolerance
ccm/10s + : 34.7
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 str. + : 1.0
Check tolerance
cm³/1000s. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2150
Del. quantity
cm³/1000 strokes : 34.9
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000s. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 2425

Del. quantity
cm3/1000 strokes : 2.5
Tolerance
cm3/1000 str. + : 2.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 7.7

Rated speed rpm : 1950
Del. quantity
cm3/1000 strokes : 40.5
Tolerance
cm3/1000 str. + : 1.2
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1700
Del. quantity
cm3/1000 strokes : 39.0
Tolerance
cm3/1000 str. + : 1.2
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 30.6
Tolerance
cm3/1000 str. + : 0.2
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 1.5
Tolerance
cm3/1000 str. + : 1.5
Spread
cm3/1000 strokes : 5.0
Check tolerance
cm3/1000S. + : 1.5
Spread
cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 3.0
Tolerance
cm3/1000 str. + : 3.0
Check tolerance
cm3/1000S. + : 3.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Del. quantity
cm3/1000 strokes : 26.5
Tolerance
cm3/1000 str. + : 0.5
Check tolerance
cm3/1000S. + : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm3/1000 strokes : 30.4
Tolerance
cm3/1000 str. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm3/1000 strokes : 50.6
Tolerance
cm3/1000 str. + : 15.0

Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.7
Dimension K mm : 2,8
Tolerance mm +- : 0,1
Dimension KF mm : 8,4
Tolerance mm +- : 0,2
Dimension MS mm : 1,8
Tolerance mm +- : 0,2

MICROSWITCH
SET

: ARF 20.0

CONTROL LEVER POSITION
SET

Control lever
position YA mm : 42,8..45,8

Control lever
position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.12.96
Test oil : ISO 4113

Part no. : 0 460 414 146
Pump designation : VE4/11F2000R686-3

Customer-spec. information
Customer : FORD
Motor : 2.5L DI

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holde
assembly : 1 628 901 114

Opening pressure
bar : 207
Tolerance bar ± : 3

Test lines : 1 680 750 073

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 450

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

Plunger stroke mm : 0,35
Tolerance mm ± : 0,05
Outlet : B KDEP1151

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 1250

Setting mm : 3.2
Tolerance mm ± : 0.1
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 1250
Supply pump
pressure bar : 7.5
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 1000
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 35.7
Del. quantity
cm3/1000 strokes : 30.6
Tolerance
cm3/1000 str. ± : 0.5
Tolerance
cm3/1000 str. ± : 0.2
Spread
cm3/1000 strokes : 3.0
Shutoff solenoid
Volt : 12
Shutoff solenoid
Volt : 12
Check tolerance
cm3/1000s. : 4.0

IDLE SETTING

Rated speed rpm : 425
Del. quantity
cm3/1000 strokes : 8.3
Tolerance
cm3/1000 str. ± : 1.0
Shutoff solenoid
Volt : 12
Spread
cm3/1000 strokes : 3.0
Check tolerance
cm3/1000s. : 4.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. + : 1.0
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 52.5
 Tolerance
 cm³/1000 str. + : 20.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 2000
 SV travel mm : 5.7
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 SV travel mm : 2.1
 Tolerance mm + : 0.4
 Check
 tolerance mm + : 0.9
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 2000
 Supply pump
 pressure bar : 9.2
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500

Supply pump
 pressure bar : 5.8
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1000
 Supply pump
 pressure bar : 6.9
 Tolerance bar + : 0.3
 Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 500
 Overflow quantity
 ccm/10s : 119.4
 Tolerance
 ccm/10s + : 22.2

Check tolerance
 ccm/10s + : 22.2
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1950
 Overflow quantity
 ccm/10s : 150.0
 Tolerance
 ccm/10s + : 34.7

Check tolerance
 ccm/10s + : 34.7
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 2200
 Del. quantity
 cm³/1000 strokes : 32.0
 Tolerance
 cm³/1000 str. + : 1.0
 Check tolerance
 cm³/1000s. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2150
 Del. quantity
 cm³/1000 strokes : 34.9
 Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000s. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 2425

Del. quantity
cm³/1000 strokes : 2.5
Tolerance
cm³/1000 str. + : 2.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Aneroid pressure
hPa :

LDA/
HBA stroke mm : 7.7

Rated speed rpm : 1950
Del. quantity
cm³/1000 strokes : 40.5
Tolerance
cm³/1000 str. + : 1.2
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 1700
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 str. + : 1.2
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 30.6
Tolerance
cm³/1000 str. + : 0.2
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 3.0
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

EXHAUST-GAS RECIRCULATION

Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 26.5
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 2.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 480
Del. quantity
cm³/1000 strokes : 30.4
Tolerance
cm³/1000 str. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 50.6
Tolerance
cm³/1000 str. + : 15.0

Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

LDA/
HBA stroke mm : 7.7
Dimension K mm : 2,8
Tolerance mm \pm : 0,1
Dimension KF mm : 8,4
Tolerance mm \pm : 0,2
Dimension MS mm : 1,8
Tolerance mm \pm : 0,2

MICROSWITCH
SET

: ARF 20,0

CONTROL LEVER POSITION
SET

Control Lever
position YA mm : 42,8..45,8

Control Lever
position YB mm : 59,5..71,5

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.96
Test oil : ISO 4113
Part no. : 0 460 426 265
Pump designation : VE6/12F1150R730

Customer-spec. information
Customer : NH
Motor : EP0408
Power KW : 117.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

F02

Plunger stroke mm : 1,0
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Aneroid pressure
hPa : 1500
Setting mm : 2.1
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 6.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 100.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 375

Del. quantity	
cm ³ /1000 strokes	: 16.0
Tolerance	
cm ³ /1000 str. +	: 2.0
Shutoff solenoid	
Volt	: 12
Spread	
cm ³ /1000 strokes	: 5.0
Check tolerance	
cm ³ /1000S.	: 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm	: 1250
Pressure hPa	: 1500
Del. quantity	
cm ³ /1000 strokes	: 49.0
Tolerance	
cm ³ /1000 str. +	: 2.0
Shutoff solenoid	
Volt	: 12

STARTING FUEL DELIVERY

Rated speed rpm	: 100
Del. quantity	
cm ³ /1000 strokes	: 110.0
Tolerance	
cm ³ /1000 str. +	: 30.0
Shutoff solenoid	
Volt	: 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: 1500
SV travel mm	: 3.3
Tolerance mm +	: 0.4
Check	
tolerance mm +	: 0.7
Shutoff solenoid	
Volt	: 12
Rated speed rpm	: 600
Aneroid pressure	
hPa	: 1500
SV travel mm	: 0.9
Tolerance mm +	: 0.4

Check	
tolerance mm +	: 0.7
Shutoff solenoid	
Volt	: 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: 1500
Supply pump	
pressure bar	: 7.2
Tolerance bar +	: 0.3
Shutoff solenoid	
Volt	: 12

Rated speed rpm	: 600
Aneroid pressure	
hPa	: 1500
Supply pump	
pressure bar	: 5.2
Tolerance bar +	: 0.3
Shutoff solenoid	
Volt	: 12

OVERFLOW QUANTITY

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: 1500
Overflow quantity	
ccm/10s	: 130.5
Tolerance	
ccm/10s +	: 27.7

Check tolerance	
ccm/10s +	: 27.7
Shutoff solenoid	
Volt	: 12

Rated speed rpm	: 500
Aneroid pressure	
hPa	: 1500
Overflow quantity	
ccm/10s	: 97.2
Tolerance	
ccm/10s +	: 16.6

Check tolerance	
ccm/10s +	: 16.6
Shutoff solenoid	
Volt	: 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm	: 1250
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm ³ /1000 strokes	: 49.0

Tolerance
 cm3/1000 str. + : 2.0
 Check tolerance
 cm3/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1200
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 83.0
 Tolerance
 cm3/1000 str. + : 5.0
 Check tolerance
 cm3/1000S. + : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1300
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 650
 Aneroid pressure
 hPa : 600
 Del. quantity
 cm3/1000 strokes : 101.0
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 88.0
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 120.0

Tolerance
 cm3/1000 str. + : 3.0
 Check tolerance
 cm3/1000S. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm3/1000 strokes : 100.5
 Tolerance
 cm3/1000 str. + : 0.5
 Check tolerance
 cm3/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF
 CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. + : 1.5
 Spread
 cm3/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm3/1000 strokes : 1.5
 Tolerance
 cm3/1000 str. + : 1.5
 Check tolerance
 cm3/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 str. \pm : 5.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm \pm : 0,1
Dimension KF mm : KOT
Dimension MS mm : 1,3
Tolerance mm \pm : 0,2

CONTROL LEVER POSITION SET

Control Lever
position YA mm : 32,8..34,8

Control Lever
position YB mm : 45,0..51,0

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.96
Test oil : ISO 4113
Part no. : 0 460 426 266
Pump designation : VE6/12F1100R730-1

Customer-spec. information
Customer : NH
Motor : EP040B
Power KW : 98.0

TEST BENCH REQUIREMENTS

Calibrating-oil
return
temperature °C : 45
Tolerance °C ± : 1

Overflow
restriction mm : 0.75

Inlet press. bar : 0.35
Tolerance bar ± : 0.05

Test nozzle holder
assembly : 1 688 901 110

Opening pressure
bar : 250
Tolerance bar ± : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

F06

Plunger stroke mm : 1,0
Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 800
Aneroid pressure
hPa : 1500
Setting mm : 2.0
Tolerance mm ± : 0.2
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 5.2
Tolerance bar ± : 0.3
Shutoff solenoid
Volt : 12

FULL-LOAD DELIVERY WITH BOOST PRESSURE

Rated speed rpm : 800
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 str. ± : 0.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 5.0
Shutoff solenoid
Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 str. ± : 0.5
Shutoff solenoid
Volt : 12
Check tolerance
cm³/1000S. : 5.0

IDLE SETTING

Rated speed rpm : 375

Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000 str. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1180
Pressure hPa : 1500
Del. quantity
cm³/1000 strokes : 48.5
Tolerance
cm³/1000 str. + : 2.0
Shutoff solenoid
Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 str. + : 30.0
Shutoff solenoid
Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500
SV travel mm : 3.8
Tolerance mm + : 0.4
Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1500

SV travel mm : 1.0
Tolerance mm + : 0.4

Check
tolerance mm + : 0.7
Shutoff solenoid
Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 7.7
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

Rated speed rpm : 600
Aneroid pressure
hPa : 1500
Supply pump
pressure bar : 6.2
Tolerance bar + : 0.3
Shutoff solenoid
Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Overflow quantity
ccm/10s : 130.5
Tolerance
ccm/10s + : 27.7

Check tolerance
ccm/10s + : 27.7
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Aneroid pressure
hPa : 1500
Overflow quantity
ccm/10s : 97.2
Tolerance
ccm/10s + : 16.6

Check tolerance
ccm/10s + : 16.6
Shutoff solenoid
Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1180
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 48.5

Tolerance
 cm³/1000 str. + : 2.0
 Check tolerance
 cm³/1000S. + : 6.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1150
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 68.0
 Tolerance
 cm³/1000 str. + : 5.0
 Check tolerance
 cm³/1000S. + : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1210
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 650
 Aneroid pressure
 hPa : 600
 Del. quantity
 cm³/1000 strokes : 91.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 4.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 77.0
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 3.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 500
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 103.0

Tolerance
 cm³/1000 str. + : 3.0
 Check tolerance
 cm³/1000S. + : 5.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 800
 Aneroid pressure
 hPa : 1500
 Del. quantity
 cm³/1000 strokes : 85.5
 Tolerance
 cm³/1000 str. + : 0.5
 Check tolerance
 cm³/1000S. + : 3.0
 Shutoff solenoid
 Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Spread
 cm³/1000 strokes : 5.0
 Check tolerance
 cm³/1000S. + : 1.5
 Spread
 cm³/1000 strokes : 5.0

IDLE DELIVERY

Rated speed rpm : 450
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. + : 1.5
 Check tolerance
 cm³/1000S. + : 1.5
 Shutoff solenoid
 Volt : 12

START TRANSITION

Rated speed rpm : 200
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 str. + : 5.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : KOT
Dimension MS mm : 1,4
Tolerance mm + : 0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 40,7..47,3

End of test-specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 19.12.96
 Test oil : ISO 4113
 Part no. : 0 460 426 264
 Pump designation : VE6/12F1100R729-2

Customer spec. information
 Customer : NH
 Motor : EP040B-F125
 Power KW : 96.0

TEST BENCH REQUIREMENTS

Calibrating-oil
 return
 temperature °C : 45
 Tolerance °C + : 1

Overflow
 restriction mm : 0.75

Inlet press. bar : 0.35
 Tolerance bar + : 0.05

Test nozzle holde
 assembly : 1 688 901 110

Opening pressure
 bar : 250
 Tolerance bar + : 3

Test lines : 1 680 750 000

Outside diameter : 6.00

x inside diameter : 2.00
 x length mm : 840

REMARKS

BEGINNING OF DELIVERY

Start of delivery blocking

F10

Plunger stroke mm : 1,0
 Outlet : B

INJECTION PUMP SETTING VALUES

TIMING DEVICE TRAVEL

Rated speed rpm : 600
 Setting mm : 1.6
 Tolerance mm + : 0.2
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE

Rated speed rpm : 600
 Supply pump
 pressure bar : 5.5
 Tolerance bar + : 0.2
 Shutoff solenoid
 Volt : 12

FULL-LOAD DELIV. WITHOUT BOOST PRESSURE

Rated speed rpm : 600
 Rated speed rpm : 800
 Del. quantity
 cm3/1000 strokes : 75.0
 Del. quantity
 cm3/1000 strokes : 80.0
 Tolerance
 cm3/1000 str. + : 0.5
 Tolerance
 cm3/1000 str. + : 0.5
 Spread
 cm3/1000 strokes : 5.0
 Shutoff solenoid
 Volt : 12
 Shutoff solenoid
 Volt : 12

IDLE SETTING

Rated speed rpm : 375
 Del. quantity
 cm3/1000 strokes : 15.0
 Tolerance
 cm3/1000 str. + : 0.5
 Shutoff solenoid
 Volt : 12
 Spread
 cm3/1000 strokes : 5.0
 Check tolerance
 cm3/1000S. : 5.0

FULL-LOAD SPEED REGULATION

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Shutoff solenoid
 Volt : 12

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 110.0
 Tolerance
 cm³/1000 str. ± : 25.0
 Shutoff solenoid
 Volt : 12

INJECTION-PUMP TEST SPECIFICATIONS

TIMING DEVICE CHARACTERISTIC

Rated speed rpm : 750
 SV travel mm : 2.2
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 SV travel mm : 1.1
 Tolerance mm ± : 0.4
 Check
 tolerance mm ± : 0.7
 Shutoff solenoid
 Volt : 12

SUPPLY PUMP PRESSURE CHARACTERISTIC

Rated speed rpm : 1100
 Supply pump
 pressure bar : 7.8
 Tolerance bar ± : 0.3
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 Supply pump
 pressure bar : 4.9
 Tolerance bar ± : 0.3

Shutoff solenoid
 Volt : 12

OVERFLOW QUANTITY

Rated speed rpm : 1100
 Overflow quantity
 ccm/10s : 130.5
 Tolerance
 ccm/10s ± : 27.7

Check tolerance
 ccm/10s ± : 27.7
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 475
 Overflow quantity
 ccm/10s : 108.3
 Tolerance
 ccm/10s ± : 16.6

Check tolerance
 ccm/10s ± : 16.6
 Shutoff solenoid
 Volt : 12

DELIVERY AND BREAKAWAY CHARACTERISTIC

Rated speed rpm : 1150
 Del. quantity
 cm³/1000 strokes : 65.0
 Tolerance
 cm³/1000 str. ± : 0.5
 Check tolerance
 cm³/1000s. ± : 8.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1190
 Del. quantity
 cm³/1000 strokes : 33.0
 Tolerance
 cm³/1000 str. ± : 8.0
 Check tolerance
 cm³/1000s. ± : 12.0
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1220
 Del. quantity
 cm³/1000 strokes : 1.5
 Tolerance
 cm³/1000 str. ± : 1.5
 Check tolerance
 cm³/1000s. ± : 1.5
 Shutoff solenoid
 Volt : 12

Rated speed rpm : 1100

Del. quantity
cm³/1000 strokes : 71.0
Tolerance
cm³/1000 str. + : 2.0
Check tolerance
cm³/1000S. + : 3.5
Shutoff solenoid
Volt : 12

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 67.0
Tolerance
cm³/1000 str. + : 6.0
Check tolerance
cm³/1000S. + : 6.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 68.5
Tolerance
cm³/1000 str. + : 3.0
Check tolerance
cm³/1000S. + : 5.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 str. + : 0.5
Check tolerance
cm³/1000S. + : 3.0
Shutoff solenoid
Volt : 12

ELECTR. SHUTOFF CONTROL LEVER, IDLE STOP

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Spread
cm³/1000 strokes : 5.0

FULL-LOAD STOP CONTROL LEVER

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 1.5

Tolerance
cm³/1000 str. + : 1.5
Spread
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. + : 1.5

IDLE DELIVERY

Rated speed rpm : 460
Del. quantity
cm³/1000 strokes : 1.5
Tolerance
cm³/1000 str. + : 1.5
Check tolerance
cm³/1000S. + : 1.5
Shutoff solenoid
Volt : 12

START TRANSITION

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 72.0
Tolerance
cm³/1000 str. + : 10.0
Shutoff solenoid
Volt : 12

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 str. + : 20.0
Shutoff solenoid
Volt : 12

ASSEMBLY AND ADJUSTMENT DIMENSIONS

Dimension K mm : 3,7
Tolerance mm + : 0,1
Dimension KF mm : KOT
Dimension MS mm : 1,4
Tolerance mm + : 0,2

CONTROL LEVER POSITION SET

Control lever
position YA mm : 32,8..34,8

Control lever
position YB mm : 39,6..46,2

End of test-specification sheet

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 13.11.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/10F2100R675
Type number : 0 460 404 085
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.67.3700

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 022

Opening
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: 0.2
> (from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.60...2.80
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.50...6.10
Shutoff
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm3/
> 1000S.: 43.0...44.0
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
> 1000S.: 13.0...17.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 3.0
> 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Del. quantity cm3/
> 1000S.: 30.0...34.0
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.0...100.0
mind> 1000S.: 60.0
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference> 1000S.: - 9.0...11.0 *
Shutoff
electromagnet>Volt: 12
SP press.-dif.measurement

1st speed 1/min: 1250
Supply pump
pressure>
difference> bar: - 0.1...0.3 *
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 0.6...1.2
> mm: (0.2...1.6)
electromagnet>Volt: 12
2nd speed 1/min: 1250
TD travel mm: 2.6...2.8
> mm: (2.1...3.3)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
TD travel mm: 7.1...7.7
> mm: (6.7...8.1)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure> bar: 3.0...3.6
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure> bar: 5.5...6.1
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure> bar: 7.9...8.5
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve

1st speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...83.40
quantity> cm³/10s: (26.70...98.40)
2nd speed 1/min: 2100
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
3rd speed 1/min: 2300
Shutoff
electromagnet>Volt: 12

Del. quantity cm³/: 30.0...34.0
> 1000S.: (26.0...38.0)
4th speed 1/min: 2100
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 43.0...46.0
> 1000S.: (42.0...47.0)
5th speed 1/min: 1500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 43.0...44.0
> 1000S.: (41.5...45.5)
9th speed 1/min: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 39.5...42.5
> 1000S.: (38.5...43.5)
10th speed 1/min: 600
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 34.5...38.5
> 1000S.: (33.5...39.5)

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.0...3.0
> 1000S.: -
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 13.0...17.0
> 1000S.: (10.0...20.0)
Dispersion cm³/: 3.0
> 1000S.: (3.0)
2nd speed 1/min: 465
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
3rd speed 1/min: 325
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 22.0...32.0
> 1000S.: (21.0...33.0)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : -10.0...16.0 "
difference> 1000S.: -
Shutoff

electromagnet>Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm3/: 4.0...6.0 ' Z
difference> 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:

1st speed 1/min: 1250
TD-travel : -0.2...0.4 "
difference> mm: -
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1250
TD-travel : 0.0...0.4 'Z
difference> mm: -
Shutoff
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 500
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 25.0...45.0
> 1000S.: -

2nd speed 1/min: 300
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 47.0...67.0
> 1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 60.0...100.0
> 1000S.: -

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.6...6.0
MS	mm: 1.7...1.9
Ya	mm: 37.9...39.9
Yb	mm: 42.9...48.1

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle

position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 24.10.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R535-1
Type number : 0 460 414 129
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.47.2210

Power KW: 83.0

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inf. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 1000

Setting value mm: 3.20...3.40
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 1000
Setting value bar: 6.80...7.40
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 61.50...62.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 4.0
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
> 1000S.: 25.50...26.50
Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
> 1000S.: 8.00...12.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 6.0
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2175
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 24.00...30.00
Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...90.00
mind> 1000S.: 40.00
Shutoff
electromagnet>Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1400
Charge press hPa: -
Inj.-qty. cm3/
difference> 1000s.: -15.5...17.5 *
Shutoff
electromagnet>Volt: 12
SP press.-dif.measurement

1st speed 1/min: 1400
Charge press hPa: -
Supply pump
pressure>
difference> bar: -0.1...0.3 *
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.00...2.60
> mm: (1.60...3.00)
electromagnet>Volt: 12
2nd speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 3.20...3.40
> mm: (2.60...4.00)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1600
Charge press hPa: 1000
TD travel mm: 4.20...4.80
> mm: (3.80...5.20)
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1900
Charge press hPa: 1000
TD travel mm: 4.60...5.20
> mm: (4.20...5.60)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure> bar: 4.60...5.20
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.80...7.40
Shutoff
electromagnet>Volt: 12

3rd speed 1/min: 1900
Charge press. hPa: 1000
Supply-pump
pressure> bar: 8.50...9.10
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...83.40
quantity> cm3/10s: (26.70...98.40)
2nd speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point> hPa: 400
LDA-stroke mm: 6.4
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 48.50...49.50
> 1000s.: (45.50...52.50)
2nd speed 1/min: 2325
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000s.: (0.00...3.00)
3rd speed 1/min: 2175
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 24.0...30.0
> 1000s.: (22.5...31.5)
4th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 37.0...45.0
> 1000s.: (35.0...47.0)
5th speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 59.50...64.50
> 1000s.: (58.50...65.50)
6th speed 1/min: 1750
Charge press. hPa: 1000
Shutoff

electromagnet>Volt: 12
 Del. quantity cm3/: 61.5...62.5
 > 1000S.: (58.5...65.5)
 7th speed 1/min: 1250
 Charge press. hPa: 1200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 56.5...61.5
 > 1000S.: (55.0...63.0)
 8th speed 1/min: 550
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 25.50...26.50
 > 1000S.: (22.50...29.50)
 9th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 55.0...64.0
 > 1000S.: (54.0...65.0)

Electr. shutoff:

1st speed 1/min: 325
 Charge press. hPa: -
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: (0.00...3.00)
 Shutoff
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 325
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 8.00...12.00
 > 1000S.: (6.00...14.00)
 Dispersion cm3/: 6.0
 > 1000S.: (6.5)
 2nd speed 1/min: 450
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 0.00...3.00
 > 1000S.: -

Load-dependent start of delivery: Inf.-qty.dif.measurement:

1st speed 1/min: 1400
 Charge press. hPa: -
 Inf.-qty. cm3/ : -16.0...22.0"
 difference> 1000S.: (-15.0...23.0) "
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1400
 Charge press. hPa: -
 Inf.-qty. cm3/: 2.0...8.0 z '

difference> 1000S.: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:

1st speed 1/min: 1400
 Charge press. hPa: -
 TD-travel : -0.8...1.0 "
 difference> mm: -
 Shutoff
 electromagnet>Volt: 12
 2nd speed 1/min: 1400
 Charge press. hPa: -
 TD-travel : -1.0...1.8 '
 Shutoff
 electromagnet>Volt: 12.0

Part-load del.at 3rd inj.-qty.

stop (EGR set)

Spacing mm: 12.0

1st speed 1/min: 1200
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 17.0...19.0
 > 1000S.: (15.5...20.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet>Volt: 12
 Del. quantity cm3/: 55.0...105.0
 > 1000S.: -
 2nd speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet>Volt: 12.0
 Del. quantity cm3/: 14.0...30.0
 > 1000S.: -

Shutoff electromagnet:

Cut-in
 >min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: K1
 KF mm: KOT
 MS1 mm: 1.4...1.7
 LDA stroke mm: 6.4

Ya mm: 33.0...35.0
Yb mm: 46.4...52.4

Potentiometer adjustment:

Angle for
pot. > °: 25
Supply voltage
pot. > volt: 5.0
Output volt
pot. > volt: 3.3

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAX
Edition : 14.10.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R653-1
Type number : 0 460 414 160
Customer Part-No. :

Customer-specific information
Customer : MAXION

Engine : HS 4

Power KW: 70.0

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 116

Opening
Pressure> bar: 204.00...210.00

Perforated-plate
diamter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1200
Setting value mm: 2.10...2.30

Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1200
Setting value bar: 6.50...7.10
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1150
Charge press. hPa: 1200
Del. quantity cm3/
> 1000S.: 68.00...69.00

Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 3.0
> 1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 48.00...49.00

Shutoff
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 12.00...16.00

Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 4.0
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 2150
Charge press hPa: 1200
Del. quantity cm3/
> 1000S.: 44.00...48.00

Shutoff
electromagnet>Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 44.00...94.00
mind> 1000S.: 44.00

Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1500
Charge press hPa: 1200
TD travel mm: 2.10...2.30
> mm: (1.70...2.70)
electromagnet>Volt: 12
2nd speed 1/min: 1900
Charge press hPa: 1200
TD travel mm: 4.70...5.30
> mm: (4.40...5.60)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 2100
Charge press hPa: 1200
TD travel mm: 5.70...6.30
> mm: (5.40...6.60)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1200
Supply-pump pressure> bar: 3.20...3.80
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1200
Supply-pump pressure> bar: 4.70...5.30
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1500
Charge press. hPa: 1200
Supply-pump pressure> bar: 6.50...7.10
Shutoff
electromagnet>Volt: 12
4th speed 1/min: 1900
Charge press. hPa: 1200
Supply-pump pressure> bar: 7.80...8.40
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...83.40
quantity> cm3/10s: (26.70...98.40)
2nd speed 1/min: 1900
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00

quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point> hPa: 600
LDA-stroke mm: 6,8
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 63.50...64.50
> 1000S.: (61.00...67.00)
2nd speed 1/min: 2450
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
> 1000S.: (0.00...3.00)
3rd speed 1/min: 2300
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 19.5...29.5
> 1000S.: (18.5...30.5)
4th speed 1/min: 2150
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 44.0...48.0
> 1000S.: (41.0...51.0)
5th speed 1/min: 1900
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 66.50...70.50
> 1000S.: (65.50...71.50)
6th speed 1/min: 1150
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 68.0...69.0
> 1000S.: (66.0...71.0)
7th speed 1/min: 900
Charge press. hPa: 1200
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 66.0...71.0
> 1000S.: (64.5...72.5)
8th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 48.00...49.00
> 1000S.: (45.50...51.50)

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
> 1000S.: (0.00...3.00)
Shutoff
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 12.00...16.00
> 1000S.: (9.00...19.00)
Dispersion cm³/: 4.0
> 1000S.: (5,0)
2nd speed 1/min: 310
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 28.0...37.0
> 1000S.: (26.0...40.0)
3rd speed 1/min: 430
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 0.0...3.0
> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 22.00...72.00

Shutoff electromagnet:

Cut-in
>min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 2,7...2,9
LDA stroke mm: 6,8
Ya mm: 43.5...47.5
Yb mm: 51.0...62.0

Remarks:

:
:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed

position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 12.11.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F125DR654
Type number : 0 460 426 247
Customer Part-No. : 2645F020

Customer-specific information
Customer : PERKINS

Engine : 1006E.6T

Power KW: 120

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 40.00...48.00
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Start of delivery block
Piston stroke mm: 1.0
Outlet > : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1500
Setting value : 1,6...1,8
Shutoff
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1500
Setting value bar: 6,60...7,20
Shutoff
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1500
Del. quantity cm3/
> 1000S.: 66,50...67.50
Shutoff
electromagnet>Volt: 12
Dispersion cm3/: 5.0
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 400
Del. quantity cm3/
> 1000S.: 49.0...50.0
Shutoff
electromagnet>Volt: 12.0

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
> 1000S.: 13,00...17.00
Shutoff
electromagnet>Volt: 12
Del. quantity cm3/: 6.5
> 1000S.: (6,5)

Full-load speed regulation

Speed 1/min: 1325
Charge press hPa: 1500
Del. quantity cm3/
> 1000S.: 42.00...48.00
Shutoff
electromagnet>Volt: 12.0

Start:

Speed 1/min: 110
Del. quantity cm3/: 80.00...140.00
mind> 1000S.: 80.00
Shutoff
electromagnet>Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press hPa: 1500
TD travel mm: 0,40...1,00
> mm: (0,00...1,40)
electromagnet>Volt: 12
2nd speed 1/min: 1000
Charge press hPa: 1500
TD travel mm: 1,60...1,80
> mm: (1,10...2,30)
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 1500
TD travel mm: 2,10...2,90
> mm: (1,80...3,20)
Shutoff
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1500
Supply-pump pressure> bar: 4,30...4,90
Shutoff
electromagnet>Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1500
Supply-pump pressure> bar: 6.60...7.20
Shutoff
electromagnet>Volt: 12
3rd speed 1/min: 1250
Charge press. hPa: 1500
Supply-pump pressure> bar: 7.60...8,20
Shutoff
electromagnet>Volt: 12

Overflow quantity at overflow valve

1st speed 1/min: 400
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Overflow : 41.70...86.10
quantity> cm³/10s: (26.70...101.10)
2nd speed 1/min: 1250
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 12
Overflow : 55.60...139.00
quantity> cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 450
Charge-air pressure-setting point> hPa: 350
LDA-stroke mm: 5.7
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 60.0...61.0
> 1000s.: (57.0...64.0)
2nd speed 1/min: 1420
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
> 1000s.: (0.00...3.00)
3rd speed 1/min: 1375
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 9.00...29.00
> 1000s.: (5.00...33.00)
4th speed 1/min: 1325
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 42.0...48.0
> 1000s.: (39.0...51.0)
5th speed 1/min: 1250
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 65.00...70.00
> 1000s.: (64.00...71.00)
6th speed 1/min: 900
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 66.5...67.5
> 1000s.: (63.5...70.5)
7th speed 1/min: 500
Charge press. hPa: 1500
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 62.5...68.5
> 1000s.: (61.5...69.5)
8th speed 1/min: 400
Charge press. hPa: -
Shutoff
electromagnet>Volt: 12
Del. quantity cm³/: 49.0...50.0
> 1000s.: (46.0...53.0)

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00

> 1000S.: -

Idle delivery:

1st speed 1/min: 300

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 13.0...17.0

> 1000S.: (9.0...21.0)

Dispersion cm3/: 6.5

> 1000S.: (6.5)

2nd speed 1/min: 400

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 0.00...3.00

> 1000S.: (0.00...3.00)

3rd speed 1/min: 275

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 16.0...24.0

> 1000S.: (15.0...25.0)

Automatic starting fuel delivery:

1st speed 1/min: 110

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 80.00...140.00

> 1000S.: (80.00...140.00)

2nd speed 1/min: 150

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 75.0...145.0

> 1000S.: (75.00...145.0)

3rd speed 1/min: 280

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 28.0...68.0

> 1000S.: (28.0...68.0)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Remarks:

:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 13.11.96
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1350R674
Type number : 0 460 426 255
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.45.5000

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return>temp. > °C
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly> : 1 688 901 027

Opening
Pressure> bar: 247.00...253.00

Perforated-plate
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall>thickness : 2.00
x Length> mm: 450

Start of delivery
Prestroke mm: -
> (from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1,4...1,6
AFB/AFB
valve > Volt: 24

F27

Shutoff
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6,50...7,10
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 650
Charge press. hPa: 1000
Del. quantity cm3/
> 1000S.: 62.00...63.00
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Dispersion cm3/: 3.5
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
> 1000S.: 52.0...53.0
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24.0

11

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
> 1000S.: 14.50...18.50
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 4.0
> 1000S.: 5.05)

Full-load speed regulation

Speed 1/min: 1550
Charge press hPa: 1000
Del. quantity cm3/
> 1000S.: 12.00...16.00
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24.0

Start:

Speed 1/min: 100
Del. quantity cm3/: 33.00...830.00
mind> 1000s.: 33.00

KSB/AFB
Valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 340
Charge press hPa: 1000
TD travel mm: 1,80...2,20
> mm: -
KSB/AFB
valve > Volt: -
electromagnet>Volt: 24
2nd speed 1/min: 470
Charge press hPa: 1000
TD travel mm: 2,60...3,80
> mm: -
KSB/AFB
valve > Volt: -
Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.40...1.60
> mm: (1.00...2.00)
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
4th speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.3...2.9
> mm: (1.9...3.3)
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure> bar: 3.40...4.00
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure> bar: 6.50...7.10

KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure> bar: 7.00...7.60
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24

Overflow quantity at overflow valve

1st speed 1/min: 500
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Overflow : 41.70...86.10
quantity> cm3/10s: (26.70...101.10)
2nd speed 1/min: 1350
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Overflow : 55.60...139.00
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1600
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 0.00...3.00
> 1000s.: (0.00...3.00)
3rd speed 1/min: 1550
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 12.0...16.00
> 1000s.: (8.00...20.00)
4th speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve > Volt: 24
Shutoff
electromagnet>Volt: 24
Del. quantity cm3/: 33.0...45.0
> 1000s.: (29.0...49.0)
5th speed 1/min: 1350

Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 53.50...56.50
 > 1000s.: (51.50...58.50)
 6th speed 1/min: 650
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 62.0...63.0
 > 1000s.: (59.0...66.0)
 7th speed 1/min: 500
 Charge press. hPa: 1000
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 61.5...65.5
 > 1000s.: (60.0...67.0)

Electr. shutoff:

1st speed 1/min: 300
 Del. quantity cm3/: 0.00...3.00
 > 1000s.: -
 KSB/AFB
 valve > Volt: -

Idle delivery:

1st speed 1/min: 350
 >KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 14.5...18.5
 > 1000s.: (11.5...21.5)
 Dispersion cm3/: 4.0
 > 1000s.: (5.0)
 2nd speed 1/min: 425
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 0.00...3.00
 > 1000s.: (0.00...3.00)
 3rd speed 1/min: 300
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 39.5...43.5
 > 1000s.: (36.5...46.5)

Automatic starting fuel delivery:

1st speed 1/min: 100
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 33.00...83.00
 > 1000s.: -

2nd speed 1/min: 140
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 75.0...125.0
 > 1000s.: -

3rd speed 1/min: 230
 KSB/AFB
 valve > Volt: 24
 Shutoff
 electromagnet>Volt: 24
 Del. quantity cm3/: 50.0...70.0
 > 1000s.: -

Shutoff electromagnet:

Cut-in
 >min voltage : 20.0
 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation	
K	mm: 3.5...3.7
KF	mm: -
MS1	mm: 1.2...1.5
Ya	mm: 37.9...39.9
Yb	mm: 42.1...47.3

Remarks:

:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
Edition : 4.11.1996
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 648 977

Injection pump
Pump designation : PE8P120A52OLS7818-2
EP type number : 0 412 628 887
Governor
Governor design. : RGV300...1150PA1039
-2K

Governer no. : 0 421 815 316

Customer-spec. information
Customer : MAN

Engine : D2848LE401

1st version kW : 500.0
Rated speed >: 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C> : 38...42

Overflow valve
> : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly> : 1 688 901 019

Opening
pressure, bar> : 207...210

Orifice plate
diameter mm> : 0,8

Test Lines : 1 680 750 075

Outside diameter
x Wall>thickness : 8.00X2.50X1000
x Length mm>

(A) Injection pump setting values
> Insp. values in parentheses
> Set equal delivery quant.
> per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60
> : (4.45...4.65)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5- 4
-1

Phasing : 0-45-90-135-180-225-
Phasing : 270-315
Tolerance + - °> : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 14.40...14.50

Del.quantity cm3/ : 32.9...33.1

> 100 s: (32.6...33.4)

Spread cm3 : 0.5

> 100 s: (0.9)

2nd speed rpm : 500
Rack travel in mm : 9.6...10.0
Del.quantity cm3/ : 16.9...17.1
> 100 s: (16.6...17.4)

Spread cm3 : 0.4
> 100 s: (-)

3rd speed rpm : 300
Rack travel in mm : 7.0...7.2
Del.quantity cm3/ : 5.2...6.0*
> 100 s: (-)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 2.00...2.50
2nd speed rpm : 379
travel mm : 3.28...3.78
3rd speed rpm : 450
travel mm : 4.00...4.50
4th speed rpm : 795
travel mm : 6.63...7.13
5th speed rpm : 1450
travel mm : 13.00...14.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1280
Rack travel in mm : 12.10...14.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
 Aneroid pressure h: 1500
 Del.quantity : 329.0...331.0
 > 1000 : (326.0...334.0)
 Spread cm3 : 5.00
 > 1000 : (9.00)

RATED SPEED

1st version

Control lever
 position> degrees: 116...124

Setting point:

Speed rpm : 1280
 Rack travel in mm : 13.4

Testing:

1st rack travel in: 13.40
 Speed rpm : 1187...1205
 2nd rack travel in: 4.00
 Speed rpm : 1310...1340
 4th rack travel in: 1450
 Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
 position degrees: 73...81

Testing:

Speed rpm : 200
 Minimum rack trave: 8.20
 Speed rpm : 300
 Rack travel in mm : 7.00...7.20
 Rack travel in mm : 2.00
 Speed rpm : 280...410

Aneroid/Altitude Compensator Test

1st version

Setting
 Speed rpm : 1150
 Pressure hPa : 1500
 Rack travel mm : 14.40...14.50

Measurement

Speed 1/min : 1150

1st pressure hPa : -
 Rack travel in m: 9.60...10.00
 2nd pressure hPa : 480
 Rack travel in m: 10.10...10.20
 3rd pressure hPa : 1000
 Rack travel in m: 12.30...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500
 Speed rpm : 700
 Del.quantity cm3/ : 271.0...277.0
 > 1000 s: (272.0...280.0)
 Spread cm3 : 8.00
 > 1000 s: (12.0)
 Aneroid pressure h: 1500
 Speed rpm : 900
 Del.quantity cm3/ : 299.0...305.0
 > 1000 s: (296.0...308.0)
 Spread cm3 : 6.00
 > 1000 s: (12.0)
 Aneroid pressure h: -
 Speed rpm : 500
 Del.quantity cm3/ : 169.0...171.0
 > 1000 s: (166.0...174.0)

BREAKAWAY

1st version

1mm rack travel less than
 >
 full load rack tr: 13.40
 Speed rpm : 1187...1203

STARTING FUEL DELIVERY

Speed rpm : 100
 Del.quantity cm3/ : 100.0...120.0 *
 > 1000 s: (-)

Speed rpm : 100
 Del.quantity cm3/ : 0 **
 > 1000 s: (-)

HIGH IDLE

1st version

Speed rpm : 500
 Rack travel in mm : < 7.00
 Del.quantity cm3/ : 0 **
 > 1000 s: (-)

2nd version

Speed rpm : 500
 Rack travel in mm : < 7.50
 Del.quantity cm3/ : < 50.0 **
 > 1000 s: (-)

3rd version

Speed rpm : 500
 Rack travel in mm : 8.20...8.40
 Del.quantity cm3/ : > 125.0

> 1000 s: (-)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.00...7.20
Del.quantity cm3/ : 52.0...60.0 *
> 1000 s: (12.0...22.0)
Spread cm3 : 4.50
> 1000 s: (7.50)

Remarks:

: MAN-NR. 3-7224

* applies to cylinders 2, 3, 4 and 8
** applies for cylinders 1, 5, 6, and 7

APPLICATION

Ship

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : NAV
Edition : 13.12.96
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 746 981
Injection pump
Pump designation : PES6P120A320LS7322
EP type number : 0 412 726 904
Governor
Governor design. : RQV350...1000PA1134
Governor no. : 0 421 815 403

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-531

1st version kW : 224.0
Rated speed >: 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C> : 38...42

Overflow valve
> : 2 417 413 076

Inlet press., bar : 2.80

Test nozzle holder
assembly> : 1 688 901 101

Opening
pressure, bar> : 207...210

Orifice plate
diameter mm> : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall>thickness : 6.00X2.00X600
x Length mm>

(A) Injection pump setting values
> Insp. values in parentheses
> Set equal delivery quant.
> per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 2.90...3.00
> : (2.85...3.05)
Rack travel in mm : 10.00...13.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - °> : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.70...14.80

Del.quantity cm3/ : 22.6...22.8

> 100 s: (22.3...23.1)

Spread cm3 : 0.8

> 100 s: (1.2)

2nd speed rpm : 325.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 1.8...2.4

> 100 s: (1.6...2.6)

Spread cm3 : 0.5

> 100 s: (0.9)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 350
travel mm : 1.80...2.00

2nd speed rpm : 500
travel mm : 3.90...4.30

3rd speed rpm : 800
travel mm : 6.50...6.90

4th speed rpm : 1050
travel mm : 9.10...9.30

5th speed rpm : 1150
travel mm : 10.30...11.70

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 226.0...228.0

> 1000 : (223.0...231.0)

Spread cm3 : 8.00
> 1000 : (12.00)

RATED SPEED

1st version
Control lever
position> degrees: 115...127

Testing:
1st rack travel in: 13.70
Speed rpm : 1040...1070
2nd rack travel in: 4.00
Speed rpm : 1170...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 87.5...79.5
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.0

Testing:
Speed rpm : 275
Minimum rack travel: 7.00
Speed rpm : 350
Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.70...14.80
2nd speed rpm : 650
Rack travel in m: 14.20...14.40
3rd speed rpm : 500
Rack travel in m: 13.40...13.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 1000
Pressure hPa : 1200
Rack travel mm : 14.70...14.80

Measurement
Speed 1/min : 1000

1st pressure hPa : -
Rack travel in m: 10.60...11.00
2nd pressure hPa : 350
Rack travel in m: 11.70...11.80
3rd pressure hPa : 855
Rack travel in m: 13.60...14.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 650
Del.quantity cm3/ : 242.0...248.0
> 1000 s: (239.0...251.0)
Spread cm3 : 8.00
> 1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm3/ : 126.5...130.5
> 1000 s: (124.5...132.5)
Spread cm3 : -
> 1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
>
full load rack tr: 13.70
Speed rpm : 1040...1070

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...150.0
> 1000 s: (100.0...150.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.80...6.20
Del.quantity cm3/ : 18.5...24.5
> 1000 s: (16.5...26.5)
Spread cm3 : 5.00
> 1000 s: (9.00)

Remarks: : NAVISTAR #1823155C91

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 25.10.96
Replaces : -
Test oil : ISC-4113

Combination no. : 0 403 466 138

Injection pump
Pump designation : PES6MW100/120RS1178
EP type number : 0 413 406 160
Governor
Governor design. : RSV350...1250MW2A332
Governor no. : 0 420 085 220

Customer-spec. information
Customer : CDC

Engine : 6 CTA

1st version kW : 204.0
Rated speed >: 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C> : 38...42

Overflow valve
> : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly> : 1 688 901 017

Opening
pressure, bar> : 207...210

Orifice plate
diameter mm> : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall>thickness : 6.00X2.00X600
x Length mm> : 6.00X2.00X600

(A) Injection pump setting values
> Insp. values in parentheses
> Set equal delivery quant.
> per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.45...3.55
> : (3.40...3.60)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - °> : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 14.10...14.20

Del.quantity cm3/ : 15.5...15.7

> 100 s: (15.2...16.0)

Spread cm3 : 0.4

> 100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 2.0...2.4

> 100 s: (1.6...2.8)

Spread cm3 : 0.3

> 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 900

Del.quantity : 155.5...157.5

> 1000 : (152.5...160.5)

Spread cm3 : 4.00

> 1000 : (7.50)

RATED SPEED

1st version

Control lever

position> degrees: 107...115

Setting point:

Speed rpm : 800
Rack travel in mm : 0.65

Testing:

1st rack travel in: 13.10
Speed rpm : 1305...1315
2nd rack travel in: 4.00
Speed rpm : 1425...1455
3rd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1650
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 80...88
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.20...6.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.80
2nd pressure hPa : 255
Rack travel in m: 11.60...11.80
3rd pressure hPa : 435
Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 88.5...92.5
> 1000 s: (86.5...94.5)

BREAKAWAY

1st version
1mm rack travel less than

>
full load rack tr: 13.10
Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0...180.0
> 1000 s: (155.0...185.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.20...6.40
Del.quantity cm3/ : 20.0...24.0
> 1000 s: (17.5...26.5)
Spread cm3 : 3.50
> 1000 s: (5.50)

Remarks:

: CDC # 3921123

Start-of-delivery mark at 14° angular
displacement of the cam after start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.01.96
Test oil : ISO 4113

Combination No. : 0 402 046 824

Injection pump
Pump designation : PES6P120A320RS3279
EP type number : 0 412 026 758

Governor
Governor design. : RQ275/1050FA999-5
Governor no. : 0 421 801 663

Cust. part No. : CCEP-5112B 66-175

Customer-spec. information
Customer : RVI
Motor : MIHR 062045 A/3
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 10.50
Tolerance mm : ± 0.50

CRT ZERO POSITION

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm	:	700
<hr/>		
Del. quantity cm ³ /1000 strokes	:	158.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	± 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	± 4.0
<hr/>		
Spreed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		

Rated speed rpm	:	275
Rack travel in mm	:	-4.50
Tolerance mm	:	± 0.10
Del. quantity cm ³ /1000 strokes	:	21.0
Tolerance cm ³ /1000 strokes	:	± 2.0
Check tolerance cm ³ /1000S.	:	± 5.0
Spreed		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1126
guide sleeve travel mm	:	6.38
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	300
guide sleeve travel mm	:	2.35
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	1050
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	582

guide sleeve travel mm	:	5.14
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	710
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	1380
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	109
Rated speed rpm	:	750
<hr/>		
Rack travel in mm	:	20.00
Tolerance mm	:	± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	158.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Spreed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	274.0
tolerance degree	:	± 4.0
<hr/>		
RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1138
Tolerance 1/min	:	± 8
<hr/>		
rack travel mm	:	-7.20
Rated speed rpm	:	1245
Tolerance 1/min	:	± 15

rack travel mm : -10.75
Tolerance mm : + 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 253.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -4.50
Tolerance mm : + 0.10

rack travel mm : -9.25
Rated speed rpm : 580
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm max. : < -3.00

TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.20
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 220
rack travel mm : -0.45
Tolerance mm : + 0.15

Pressure hPa : 160

rack travel mm : -0.85
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm3/1000 strokes : 154.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 114.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000S. : + 4.0

STARTING FUEL DELIVERY

Del. quantity
cm3/1000 strokes : 155.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 275
Del. quantity
cm3/1000 strokes : 21.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 5.0
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.04.96
Test oil : ISO 4113

Combination No. : 0 402 640 804

Injection pump
Pump designation : PE12P120A320LS7807
EP type number : 0 412 620 806

Governor
Governor design. : RQV350...1050PA842
Governor no. : 0 421 813 587

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 444 A
Power kW : 390.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 160
Tolerance L/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 12- 1- 5- 9- 8
: - 4- 11- 10- 2
: - 7

Phasing : 0-45-60-105-120
: -180-225-240-285
: -345

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 12

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.55
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
guide sleeve
travel mm : 8.50
Tolerance mm : \pm 0.20

Rated speed rpm : 350
guide sleeve
travel mm : 2.00
Tolerance mm : \pm 0.10

Rated speed rpm : 700
guide sleeve
travel mm : 4.20
Tolerance mm : \pm 0.20

Rated speed rpm : 1100
guide sleeve
travel mm : 7.00

Tolerance mm : \pm 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1150

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 660

Del. quantity
cm³/1000 strokes : 200.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 14.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.55
Tolerance mm : + 0.10

Rated speed rpm : 250

CRT mm min. : > 7.10

Rated speed rpm : 500

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.60
Tolerance mm : + 0.10

Rated speed rpm : 1050
rack travel mm : 12.10
Tolerance mm : + 0.10

Rated speed rpm : 975
rack travel mm : 12.70
Tolerance mm : + 0.10

Rated speed rpm : 875
rack travel mm : 13.30
Tolerance mm : + 0.10

Rated speed rpm : 750
rack travel mm : 13.60
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 660

MEASUREMENT

Pressure hPa : 350
rack travel mm : -2.10
Tolerance mm : + 0.05

Pressure hPa : 500
rack travel mm : -0.60
Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 172.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1100
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 206.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1100
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 137.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.03.96
Test oil : ISO 4113

Combination No. : 0 402 646 760

Injection pump
Pump designation : PE6P120A320LS7834
EP type number : 0 412 626 853

Governor
Governor design. : RQ300/1050PA1030-23
Governor no. : 0 421 801 769

Cust. part No. : 0260743502

Customer-spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1-

Phasing : 0-60-120-180-240
: 0-360
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1104
guide sleeve
travel mm : 6.51
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.78
Tolerance mm : + 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 421
guide sleeve
travel mm : 4.00
Tolerance mm : + 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00

Tolerance mm : + 0.10

Rated speed rpm : 1270
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 13.80
Rated speed rpm : 1098
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : + 15

rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 405
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 7.00

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 14.80
Tolerance mm : ± 0.05

Rated speed rpm : 1050
rack travel mm : 14.80
Tolerance mm : ± 0.10

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1000
rack travel mm : 14.80
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 10.50
Tolerance mm : ± 0.15

MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 400

rack travel mm : 12.90
Tolerance mm : ± 0.20

Pressure hPa : 600
rack travel mm : 14.15
Tolerance mm : ± 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 229.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 15.0

Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.06.96
Test oil : ISO 4113

Combination No. : 0 402 776 829

Injection pump
Pump designation : PES6P120A72ORS7399
EP type number : 0 412 726 951

Governor
Governor design. : RSV475...1050POA547
: 11
Governor no. : 0 421 833 510

Cust. part No. : RE65509

Customer-spec. information
Customer : DEERE
Motor : 6101 AT012
Power kW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 243.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 475

Rack travel in mm : 5.80
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 2300

Del. quantity
cm³/1000 strokes : 243.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 1125
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1195

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.30
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.80
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.90
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2300

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 1570
rack travel mm : 14.00
Tolerance mm : \pm 0.20

Pressure hPa : 750
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2300
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 316.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -

Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 176.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.96
Test oil : ISO 4113

Combination No. : 0 400 876 404

Injection pump
Pump designation : PES6A95D410RS2835
EP type number : 0 410 896 896

Governor
Governor design. : RSV650...1050A8C2263
: L
Governor no. : 0 420 232 583

Cust. part No. : 87 800 648

Customer-spec. information
Customer : FNH-GEOTECH
Motor : 7.5 L
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 14.50
Tolerance mm : ± 0.10

Del. quantity
cm3/1000 strokes : 151.5

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Speed

Tolerance
cm3/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 650

Rack travel in mm : 5.40

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 23.5

Tolerance

cm³/1000 strokes : ± 2.0

Check tolerance

cm³/1000S. : ± 4.5

Spread

Tolerance

cm³/1000 strokes : 5.5

Check tolerance

cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 151.5

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Spread

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 8.0

CONTROL LEVER

control lever

position degree : 83.0

tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1078

rack travel mm : 12.10

Rated speed rpm : 1118

Tolerance 1/min : ± 5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1225

Rated speed rpm : 1079

rack travel mm : 12.10

Rated speed rpm : 1119

Tolerance 1/min : ± 5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1225

Rated speed rpm : 1080

rack travel mm : 12.10

Rated speed rpm : 1120

Tolerance 1/min : ± 5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1225

Rated speed rpm : 1081

rack travel mm : 12.10

Rated speed rpm : 1121

Tolerance 1/min : ± 5

rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1225

Rated speed rpm : 1082

rack travel mm : 12.10
Rated speed rpm : 1122
Tolerance 1/min : + 5
rack travel mm : 4.00
rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1225

Rated speed rpm : 1083
rack travel mm : 12.10

Rated speed rpm : 1123
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1225

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.90
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 5.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 700
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 19.50

TORQUE CONTROL

Rated speed rpm : 750
rack travel mm : 14.50
Tolerance mm : + 0.10

Rated speed rpm : 1025
rack travel mm : 12.80
Tolerance mm : + 0.10

G26

Rated speed rpm : 1025
rack travel mm : 13.30
Tolerance mm : + 0.10

Rated speed rpm : 975
rack travel mm : 13.65
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.50
Tolerance mm : + 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.90
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 325
rack travel mm : 10.70
Tolerance mm : + 0.20
Pressure hPa : 550
rack travel mm : 13.55
Tolerance mm : + 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 77.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.5

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 23.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.10.96

Test oil : ISO 4113

Combination No. : 0 402 776 803

Injection pump

Pump designation : PES6P120A720LS7107

EP type number : 0 412 726 805

Governor

Governer design. : RSV35G...750POA520

Governer no. : 0 421 833 262

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ

Motor : OM447 A

Power KW : 180.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 110

Tolerance l/h : ± 10.0

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-

: 3

Phasing : 0-60-120-180-240

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.85

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 225.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 225.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 81.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 750
rack travel mm : 13.80

Rated speed rpm : 793
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 751
rack travel mm : 13.80

Rated speed rpm : 794
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 752
rack travel mm : 13.80

Rated speed rpm : 795
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 850

Rated speed rpm : 753
rack travel mm : 13.80

Rated speed rpm : 796
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 850

Rated speed rpm : 754
rack travel mm : 13.80

Rated speed rpm : 797
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 850

Rated speed rpm : 755
rack travel mm : 13.80

Rated speed rpm : 798
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 850

LOW IDLE

control lever
position degree : 67.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100
rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.85

H02

Tolerance mm : \pm 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.96
Test oil : ISO 4113

Combination No. : 0 402 776 830

Injection pump
Pump designation : PES6P120A720RS7404
EP type number : 0 412 726 953

Governor
Governor design. : RSV400...1050POA547
: 12
Governor no. : 0 421 833 511

Cust. part No. : RE500079

Customer-spec. information
Customer : DEERE
Motor : 6101 AF010
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.15
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 214.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 2400

Del. quantity
cm³/1000 strokes : 214.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1230

rack travel mm : 4.00
Rated speed rpm : 1180

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.00

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.50
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.15
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 13.20
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2400

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.40
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1580
rack travel mm : 12.30
Tolerance mm : ± 0.05

Pressure hPa : 850
rack travel mm : 10.40
Tolerance mm : ± 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2400
Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 25.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.12.96
Test oil : ISO 4113
Combination No. : 0 402 776 831
Injection pump
Pump designation : PES6P120A720RS7404
EP type number : 0 412 726 953
Governor
Governor design. : RSV400...1050POA547
: 13
Governor no. : 0 421 833 512
Cust. part No. : RE500081

Customer-spec. information
Customer : DEERE
Motor : 6101 AFO10
Power KW : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 079
Inlet press. bar : 2.0
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

H06

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference °CS : 2.50

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.15
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 6.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 28.5

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.25

H07

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 2600

Del. quantity
cm³/1000 strokes : 231.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.10

Rated speed rpm : 1110

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1185

Tolerance 1/min : + 5

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1270

rack travel mm : 4.00

Rated speed rpm : 1195

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.50

Tolerance mm : + 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.15
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.95
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 2600

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 1750
rack travel mm : 12.90
Tolerance mm : \pm 0.05

Pressure hPa : 925
rack travel mm : 10.80
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2600
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 267.5
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W40C/...

Edition : 04.01.97
Test oil : ISO 4113
Combination No. : 0 400 876 295
Injection pump
Pump designation : PES6A90D410RS2596
EP type number : 0 410 896 073
Governor
Governor design. : RSV750...1250A1C618
: 1L
Governor no. : 0 420 232 513

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM352
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 1.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

H09

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

BASIC SETTING

Del. quantity
cm³/1000 strokes : 78.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 750

Rack travel in mm : 7.10
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
 cm³/1000S. : + 5.0
 Spread
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800

 Rack travel in mm : 0.65
 Tolerance mm : + 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1230
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 78.0
 Tolerance
 cm³/1000 strokes : + 0.5
 Check tolerance
 cm³/1000S. : + 2.5
 Spread
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.5

CONTROL LEVER

control lever
 position degree : 109.0
 tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1250
 rack travel mm : 12.20

 Rated speed rpm : 1280
 Tolerance 1/min : + 6
 rack travel mm : 4.00

rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1445

Rated speed rpm : 1251
 rack travel mm : 12.20

Rated speed rpm : 1281
 Tolerance 1/min : + 6
 rack travel mm : 4.00

rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1445

Rated speed rpm : 1252
 rack travel mm : 12.20

Rated speed rpm : 1282
 Tolerance 1/min : + 6
 rack travel mm : 4.00

rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1445

Rated speed rpm : 1253
 rack travel mm : 12.20

Rated speed rpm : 1283
 Tolerance 1/min : + 6
 rack travel mm : 4.00

rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1445

Rated speed rpm : 1254
 rack travel mm : 12.20

Rated speed rpm : 1284
 Tolerance 1/min : + 6
 rack travel mm : 4.00

rack travel mm : 1.00
 Tolerance mm : + 0.70
 Rated speed rpm : 1445

Rated speed rpm : 1255
 rack travel mm : 12.20

Rated speed rpm : 1285
 Tolerance 1/min : + 6
 rack travel mm : 4.00

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1445

LOW IDLE

control lever
position degree : 86.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 750
rack travel mm : 7.10
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 780
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.50

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.80
Tolerance mm : ± 0.20
Del. quantity
cm3/1000 strokes : 85.0
Tolerance
cm3/1000 strokes : ± 5.0
Check tolerance
cm3/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 12.0
Tolerance
cm3/1000 strokes : ± 3.0

H11

Check tolerance
cm3/1000S. : ± 5.0
Spreed
Tolerance
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.01.97
Test oil : ISO 4113
Combination No. : 0 400 876 311
Injection pump
Pump designation : PES6A90D410RS2569
EP type number : 0 410 896 071
Governor
Governor design. : RSV350...1250A0C1130
Governor no. : 0 420 232 427

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 352
Power KW : 92.0

TEST BENCH REQUIREMENTS

Inlet line : 1.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H12

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 67.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000s. : 4.5

Rated speed rpm : 350

Del. quantity
 cm³/1000 strokes : 11.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800

 Rack travel in mm : 0.65
 Tolerance mm : ± 0.35

 governor spring
 pre-tension
 click setting x : 5.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 67.5
 Tolerance
 cm³/1000 strokes : ± 0.5
 Check tolerance
 cm³/1000S. : ± 2.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.5

CONTROL LEVER

control lever
 position degree : 113.0
 tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 1.00
 Tolerance mm : ± 0.70
 Rated speed rpm : 1550

 rack travel mm : 4.00
 Rated speed rpm : 1425

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
 rack travel mm : 8.40
 Tolerance mm : ± 0.10

Testing:

rack travel mm : 2.00
 Rated speed rpm : 590
 Tolerance 1/min : ± 30

 Rated speed rpm : 100

 CRT mm min. : > 19.00

TORQUE CONTRCL

Rated speed rpm : 1250
 rack travel mm : 11.55
 Tolerance mm : ± 0.05

 Rated speed rpm : 600
 rack travel mm : 11.95
 Tolerance mm : ± 0.05

 Rated speed rpm : 1050
 rack travel mm : 11.60
 Tolerance mm : ± 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 57.0
 Tolerance
 cm³/1000 strokes : ± 1.0
 Check tolerance
 cm³/1000S. : ± 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 64.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.30
Tolerance mm : ± 0.20
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 151

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV450...1100MW2A367
Governor no. : 0 420 085 250

Cust. part No. : 3926877

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 138.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 3.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 450

Rack travel in mm : 5.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 24.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.00

H16

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever

position degree : 94.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.80

Rated speed rpm : 1165

Tolerance 1/min : \pm 5

rack travel mm : 6.40

Rated speed rpm : 1230

Tolerance 1/min : \pm 5

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1350

rack travel mm : 6.40

Rated speed rpm : 1230

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1350

rack travel mm : 6.40

Rated speed rpm : 1230

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1350

rack travel mm : 4.90
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 5.40
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.80
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.35
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 11.15
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 10.90
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

H17

Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 153

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 403 237

Governor
Governor design. : RSV425...1100MW2A369
Governor no. : 0 420 085 252

Cust. part No. : 3930123

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H18

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference °CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 138.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000s. : 7.5

Rated speed rpm : 425

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 4.5

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.75

H19

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 138.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 7.5

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.50
Rated speed rpm : 1190
Tolerance 1/min : \pm 5

rack travel mm : 4.50
Rated speed rpm : 1265
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1400

rack travel mm : 4.50
Rated speed rpm : 1265

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 24.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 425

rack travel mm : 4.80
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 425
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 830
rack travel mm : 11.85
Tolerance mm : \pm 0.20

Pressure hPa : 630
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

H2O

Del. quantity
cm³/1000 strokes : 156.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 124.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS**Note remarks**

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 456 154

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV500...1100MW2A370
Governor no. : 0 420 085 253

Cust. part No. : 3926880

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

H21

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 8.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference °CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 139.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.25
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.75

H22

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 139.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.60

Rated speed rpm : 1165

Tolerance 1/min : \pm 5

rack travel mm : 5.90

Rated speed rpm : 1230

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 87.5
tolerance degree : \pm 4.0

Control Lever difference

Grad : 20.5

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.75

Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.25
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.60
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 850
rack travel mm : 11.90
Tolerance mm : \pm 0.20

Pressure hPa : 590
rack travel mm : 10.90
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 2.0

H23

Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 117.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 155

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV425...1190MW2A371
Governor no. : 0 420 085 254

Cust. part No. : 3930124

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1190

Rack travel in mm : 9.95
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 119.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 440

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 24.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1190

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 119.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 8.90

Rated speed rpm : 1270
Tolerance 1/min : \pm 5

rack travel mm : 4.50

Rated speed rpm : 1330
Tolerance 1/min : \pm 5

rack travel mm : 1.00

Tolerance mm : \pm 0.70
Rated speed rpm : 1400

rack travel mm : 4.50

Rated speed rpm : 1330

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

Control lever difference

Grad : 21.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 440
rack travel mm : 4.70
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 440
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1190
rack travel mm : 9.95
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 10.30
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.05
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 550
rack travel mm : 10.20
Tolerance mm : ± 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 115.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 13.0

LOW IDLE

Rated speed rpm : 440
Del. quantity
cm³/1000 strokes : 24.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 157

Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239

Governor
Governor design. : RSV500...1100MW2A375
Governor no. : 0 420 085 258

Cust. part No. : 3929172

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 171.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H27

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 151.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

H28

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 151.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 110.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.40
Rated speed rpm : 1160

Tolerance 1/min : \pm 5

rack travel mm : 6.30

Rated speed rpm : 1230

Tolerance 1/min : \pm 5

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1325

rack travel mm : 6.30

Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 88.0
tolerance degree : \pm 4.0

Control lever difference

Grad : 22.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 790
rack travel mm : 12.20
Tolerance mm : \pm 0.20

Pressure hPa : 620
rack travel mm : 11.30
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 167.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 158

Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239

Governor
Governor design. : RSV425...1100MW2A376
Governor no. : 0 420 085 259

Cust. part No. : 3929837

Customer-spec. information
Customer : CDC
Motor : 6 CTA-A
Power KW : 172.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.75
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 435

Rack travel in mm : 6.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.75

J03

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1165

Tolerance 1/min : \pm 5

rack travel mm : 6.50

Rated speed rpm : 1230

Tolerance 1/min : \pm 5

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1325

rack travel mm : 6.50

Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

Control lever difference

Grad : 23.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 435

rack travel mm : 5.70
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 435
rack travel mm : 6.20
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.75
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 12.05
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 12.20
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 435
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113
Combination No. : 0 403 466 159
Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239
Governor
Governor design. : RSV550...1100MW2A377
Governor no. : C 420 085 260

Cust. part No. : 3927117

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 171.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 093
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 151.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.00

J06

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 151.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.40

Rated speed rpm : 1160

Tolerance 1/min : \pm 5

rack travel mm : 6.70

Rated speed rpm : 1205

Tolerance 1/min : \pm 5

rack travel mm : 1.00

Tolerance mm : \pm 0.70

Rated speed rpm : 1325

rack travel mm : 6.70

Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 77.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 19.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 550

rack travel mm : 4.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 550
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 790
rack travel mm : 12.20
Tolerance mm : \pm 0.20

Pressure hPa : 620
rack travel mm : 11.30
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 166.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 160

Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239

Governor
Governor design. : RSV500...1100MW2A378
Governor no. : 0 420 085 261

Cust. part No. : 3927129

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 173.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.50
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 151.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.75

J09

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 151.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.40

Rated speed rpm : 1160

Tolerance 1/min : ± 5

rack travel mm : 6.30

Rated speed rpm : 1230

Tolerance 1/min : ± 5

rack travel mm : 1.00

Tolerance mm : ± 0.70

Rated speed rpm : 1375

rack travel mm : 6.30

Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 86.0
tolerance degree : ± 4.0

Control lever difference

Grad : 22.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 790
rack travel mm : 12.20
Tolerance mm : \pm 0.20

Pressure hPa : 620
rack travel mm : 11.30
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 167.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 119.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50

Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.5

Tolerance
cm³/1000 strokes : \pm 10.0

Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 162

Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239

Governor
Governor design. : RSV500...1100MW2A380
Governor no. : 0 420 085 263

Cust. part No. : 3930454

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 160.3

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.95
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 140.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 550

Rack travel in mm : 5.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.00

J12

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 140.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.90
Rated speed rpm : 1190
Tolerance 1/min : + 5

rack travel mm : 5.80
Rated speed rpm : 1235
Tolerance 1/min : + 5

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1400

rack travel mm : 5.80
Rated speed rpm : 1235

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Control lever difference
Grad : 22.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 550

rack travel mm : 4.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 550
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.95
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 755
rack travel mm : 11.60
Tolerance mm : \pm 0.20

Pressure hPa : 625
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 163

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV450...1000MW2A381
Governor no. : 0 420 085 264

Cust. part No. : 3929166

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 153.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference °CS : 2.00

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 148.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 450

Rack travel in mm : 5.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.20
Rated speed rpm : 1065
Tolerance 1/min : \pm 5

rack travel mm : 7.00
Rated speed rpm : 1120
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Rated speed rpm : 1200

rack travel mm : 7.00
Rated speed rpm : 1120

LOW IDLE

control lever
position degree : 81.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 19.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 4.90

Tolerance mm : + 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 5.40
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 12.45
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.50
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 850
rack travel mm : 12.10
Tolerance mm : + 0.20

Pressure hPa : 590
rack travel mm : 11.00
Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 117.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000s. : + 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 164

Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239

Governor
Governor design. : RSV500...1100MW2A382
Governor no. : 0 420 085 265

Cust. part No. : 3929171

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 171.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 151.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 151.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.40
Rated speed rpm : 1160
Tolerance 1/min : ± 5

rack travel mm : 6.70
Rated speed rpm : 1205
Tolerance 1/min : ± 5

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1325

rack travel mm : 6.70
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 77.0
tolerance degree : ± 4.0

Control lever difference
Grad : 21.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.50
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.45
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : ± 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.50
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 790
rack travel mm : 12.25
Tolerance mm : ± 0.20

Pressure hPa : 620
rack travel mm : 11.25
Tolerance mm : ± 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 167.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 145.5
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 13.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113
Combination No. : 0 403 466 165
Injection pump
Pump designation : PES6MW100/120RS1241
EP type number : 0 413 406 240
Governor
Governor design. : RSV450...1250MWOA383
Governor no. : 0 420 085 266

Cust. part No. : 3929164

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °MW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference °CS : 1.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 123.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 450

Rack travel in mm : 5.90
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.50

J21

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 123.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.90
Rated speed rpm : 1325

Tolerance 1/min : + 5

rack travel mm : 6.70
Rated speed rpm : 1390

Tolerance 1/min : + 5

rack travel mm : 1.00
Tolerance mm : + 0.70

Rated speed rpm : 1510

rack travel mm : 6.70
Rated speed rpm : 1390

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Control lever difference
Grad : 20.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 5.40
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 5.90
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.05
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 10.60
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 114.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 171.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 166

Injection pump
Pump designation : PES6MW100/120RS1241
EP type number : 0 413 406 240

Governor
Governor design. : RSV450...1250MWA384
Governor no. : 0 420 085 267

Cust. part No. : 3929163

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 160.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 15.00
Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 142.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 450

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

J24

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 142.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.20
Rated speed rpm : 1315
Tolerance 1/min : \pm 5

rack travel mm : 6.60
Rated speed rpm : 1390
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1495

rack travel mm : 6.60
Rated speed rpm : 1390

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 21.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 4.50
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.25
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 11.35
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 10.35
Tolerance mm : \pm 0.25

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 114.5
Tolerance
cm³/1000 strokes : \pm 1.0

J25

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 171.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 167

Injection pump
Pump designation : PES6MW100/120RS1240
EP type number : 0 413 406 239

Governor
Governor design. : RSV475...1000MW2A388
Governor no. : 0 420 085 268

Cust. part No. : 3929173

Customer-spec. information
Customer : CDC
Motor : 6 CTA
Power KW : 171.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Differenice ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.95
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 157.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 5.15
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.25

J27

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 157.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.90
Rated speed rpm : 1055
Tolerance 1/min : \pm 5

rack travel mm : 5.80
Rated speed rpm : 1135
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1230

rack travel mm : 5.80
Rated speed rpm : 1135

LOW IDLE

control lever
position degree : 83.5
tolerance degree : \pm 4.0

Control lever difference
Grad : 18.5
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 475

rack travel mm : 4.65
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.15
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.95
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.70
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 790
rack travel mm : 12.70
Tolerance mm : + 0.20

Pressure hPa : 620
rack travel mm : 11.80
Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750

Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 128.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 147.5
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000s. : + 13.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 172

Injection pump
Pump designation : PES6MW100/120RS1241
EP type number : 0 413 406 240

Governor
Governor design. : RSV450...1250MWOA392
Governor no. : 0 420 085 280

Cust. part No. : 3930412

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

K01

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference °CS : 1.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.45
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 450

Rack travel in mm : 5.55
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 5.00

K02

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.40
Rated speed rpm : 1320

Tolerance 1/min : + 5

rack travel mm : 6.80
Rated speed rpm : 1390

Tolerance 1/min : + 5

rack travel mm : 1.00
Tolerance mm : + 0.70

Rated speed rpm : 1500

rack travel mm : 6.80
Rated speed rpm : 1390

LOW IDLE

control lever
position degree : 77.0
tolerance degree : + 4.0

Control lever difference
Grad : 19.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 5.05
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 450
rack travel mm : 5.55
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.45
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.05
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 800
rack travel mm : 11.35
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 10.50
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 114.5
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 171.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.01.97
Test oil : ISO 4113

Combination No. : 0 403 466 174

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV500...1100MW0A398
Governor no. : 0 420 085 287

Cust. part No. : 3930122

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 112.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

K04

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference °CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.95
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 112.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 112.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 8.90
Rated speed rpm : 1165

Tolerance 1/min : \pm 5

rack travel mm : 6.00
Rated speed rpm : 1230

Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70

Rated speed rpm : 1400

rack travel mm : 6.00
Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 88.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 14.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 5.10
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.95
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 10.60
Tolerance mm : \pm 0.10

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.12.96
Test oil : ISO 4113

Combination No. : 0 403 466 176

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV500...1100MW2A402
Governor no. : 0 420 085 292

Cust. part No. : 3931934

Customer-spec. information
Customer : CDC
Motor : 6 CT
Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

K07

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.25
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 123.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 29.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 123.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 110.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 9.25
Rated speed rpm : 1170
Tolerance 1/min : \pm 5

rack travel mm : 5.80
Rated speed rpm : 1230
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1350

rack travel mm : 5.80
Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 88.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 22.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 500

rack travel mm : 4.80
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 10.25
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 10.60
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 10.60
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 177.0

Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 29.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.12.96
Test oil : ISO 4113

Combination No. : 0 402 646 669

Injection pump
Pump designation : PE6P130A720RS7197
EP type number : 0 412 636 815

Governor
Governor design. : RQV425...975PA1292
Governor no. : 0 421 814 184

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8215.42.985
Power KW : 260.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

K10

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 975

Rack travel in mm : 13.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 257.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 425

Rack travel in mm : 5.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 7.0

Spreed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1034
guide sleeve
travel mm : 7.23
Tolerance mm : + 0.15

Rated speed rpm : 425
guide sleeve
travel mm : 2.40
Tolerance mm : + 0.20

Rated speed rpm : 860
guide sleeve
travel mm : 5.34
Tolerance mm : + 0.25

Rated speed rpm : 580
guide sleeve
travel mm : 3.68
Tolerance mm : + 0.25

Rated speed rpm : 1139
guide sleeve
travel mm : 10.00

Tolerance mm : + 0.25

Rated speed rpm : 1220
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1125

Rack travel in mm : 10.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 975
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 257.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.40
Rated speed rpm : 1020
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1080
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 94.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 425
rack travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 325

CRT mm min. : > 6.50

Rated speed rpm : 470

TORQUE CONTROL

Rated speed rpm : 975
rack travel mm : 13.45
Tolerance mm : ± 0.05

Rated speed rpm : 550
rack travel mm : 13.50
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.50
Tolerance mm : ± 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.90
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 470
rack travel mm : 11.50
Tolerance mm : ± 0.20

Pressure hPa : 550
rack travel mm : 12.75
Tolerance mm : ± 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 267.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000S. : ± 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 181.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 425
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 7.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.01.97
Test oil : ISO 4113

Combination No. : 0 402 646 909

Injection pump
Pump designation : PE6P120A32ORS7138
: Z
EP type number : 0 412 626 923

Governor
Governor design. : RQV200...1100PA712
Governor no. : 0 421 813 951

Cust. part No. : 1318819

Customer-spec. information
Customer : SCANIA
Motor : DSC907

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(Rc80 diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 5.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1130

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : ± 4.0

control lever
position degree : 120.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.15
Rated speed rpm : 1145

Tolerance 1/min : ± 5

Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1285

Tolerance 1/min : ± 15

Check
speed 1/min : ± 20

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 64.0
tolerance degree : ± 4.0

control lever
position degree : 9.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 250
rack travel mm : 5.00

Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 6.50

Rated speed rpm : 250

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 12.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 10.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 220
rack travel mm : 10.75
Tolerance mm : \pm 0.15

Pressure hPa : 350
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.01.97
Test oil : ISO 4113

Combination No. : 0 402 746 630

Injection pump
Pump designation : PES6P130A720LS7422
EP type number : 0 412 736 809

Governor
Governor design. : RQV300...900PA1336
Governor no. : 0 421 814 191

Cust. part No. :

Customer-spec. information

Customer : IVECO-AIFO
Motor : 8217 SRI 10.00
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 200
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Check
tolerance °NW : ± 0.40

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 12.05

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 245.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 4.60

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 7.0

Speed

Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 959

guide sleeve
travel mm : 7.98

Tolerance mm : \pm 0.15

Rated speed rpm : 300

guide sleeve
travel mm : 1.17

Tolerance mm : \pm 0.20

Rated speed rpm : 766

guide sleeve
travel mm : 5.97

Tolerance mm : \pm 0.25

Rated speed rpm : 550

guide sleeve

travel mm : 3.62

Tolerance mm : \pm 0.25

Rated speed rpm : 1220

guide sleeve

travel mm : 11.50

Tolerance mm : \pm 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity
cm³/1000 strokes : 245.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever

position degree : 120.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.00

Rated speed rpm : 945

Tolerance 1/min : \pm 5

Check
speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1035

Tolerance 1/min : \pm 15

Check
speed 1/min : \pm 20

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1200

LOW IDLE

control lever

position degree : 79.0

tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm min. : $>$ 6.05

Rated speed rpm : 365

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 12.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1200
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 550
rack travel mm : 9.70
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 420
rack travel mm : 10.30
Tolerance mm : \pm 0.15

Pressure hPa : 450
rack travel mm : 10.85
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200

Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 256.0

Tolerance
cm³/1000 strokes : \pm 3.5

Check tolerance
cm³/1000S. : \pm 7.0

Aneroid pressure

hPa : -

Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 172.5

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 155.0

Tolerance
cm³/1000 strokes : \pm 15.0

Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 7.0

Speed
Tolerance

cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.01.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 048

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3283833

Customer-spec. information
Customer : CUMMINS
Motor : 6BTA-160/1900
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

K20

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 119.4

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.90

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 850
Del. quantity
cm³/1000 strokes : 119.4

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever

position degree : 91.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1000

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1075

Tolerance 1/min : + 5

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1200

rack travel mm : 4.00

Rated speed rpm : 1075

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Control lever difference

Grad : 15.0

tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.90
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.30
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 850

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.90
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : + 0.20

Pressure hPa : 350
rack travel mm : 11.45
Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.6
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 122.5
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 23.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.G1.97
Test oil : ISO 4113

Combination No. : 0 402 798 804

Injection pump
Pump designation : PES8P120A920/4LS7392
EP type number : 0 412 728 813

Governor
Governor design. : RE30
Governor no. : 0 421 890 034

Cust. part No. : 313 GC 5209P2

Customer-spec. information
Customer : MACK
Motor : EA9-600
Power KW : 447.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

K23

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.20

Firing order : 1- 2- 7- 8- 4
 : - 6- 3

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 2.950
Del. quantity
cm3/1000 strokes : 303.0
Tolerance
cm3/1000 strokes : +/- 1.0
Check tolerance
cm3/1000S. : +/- 4.0
Speed
Tolerance
cm3/1000 strokes : 7.0
Check tolerance
cm3/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625
Uact V : 2.880
Del. quantity
cm3/1000 strokes : 339.5
Tolerance
cm3/1000 strokes : +/- 5.0
Check tolerance
cm3/1000S. : +/- 8.0
Speed
Tolerance
cm3/1000 strokes : 12.0
Check tolerance
cm3/1000S. : 16.0

TEST POINT L1

Rated speed rpm : 325
Uact V : 1.340
Tolerance Volt : +/- 0.060
Check tolerance
Volt : +/- 0.070
Del. quantity
cm3/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : + 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 4.700
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 20.0
Speed
Tolerance
cm³/1000 strokes : 40.0
Check tolerance
cm³/1000S. : 45.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113

Combination No. : 0 402 896 310

Injection pump
Pump designation : PES6P130A320RS8522
EP type number : 0 412 936 201

Governor
Governor design. : RE30
Governor no. : 0 421 890 033

Cust. part No. : 309 4435

Customer-spec. information
Customer : CUMMINS
Motor : V30
Power KW : 1007.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 3.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.00
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 25.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference
and maximum rack
travel : 10.00

Tolerance mm : + 1.50
Difference * CS : 6.00

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min⁻¹: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min⁻¹: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min⁻¹: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 900
Uact V : 3.050
Del. quantity
cm³/1000 strokes : 425.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 750
Uact V : 3.000
Del. quantity
cm³/1000 strokes : 434.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 12.0
Spreed
Tolerance
cm³/1000 strokes : 16.0
Check tolerance
cm³/1000S. : 18.0

TEST POINT L1

Rated speed rpm	:	400
Uact V	:	1.280
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.070
Del. quantity		
cm3/1000 strokes	:	49.0
Tolerance		
cm3/1000 strokes	:	± 3.0
Speed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000S.	:	14.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm3/1000 strokes	:	260.0
Tolerance		
cm3/1000 strokes	:	± 19.0
Check tolerance		
cm3/1000S.	:	± 22.0
Speed		
Tolerance		
cm3/1000 strokes	:	40.0
Check tolerance		
cm3/1000S.	:	50.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.01.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 008

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1050AOC832R
Governor no. : F 002 A20 208

Cust. part No. : 3928598

Customer-spec. information

Customer : CDC
Motor : 6BTA
Power KW : 124.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1035

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 112.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
Spreed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

Rated speed rpm	: 500
Rack travel in mm	: 5.50
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 20.5
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 4.5
Spreed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1035
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L02

Aneroid pressure hPa	: 1200
Del. quantity cm ³ /1000 strokes	: 112.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
Spreed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 96.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 12.00
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5

rack travel mm	: 6.40
Rated speed rpm	: 1150
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1250

rack travel mm	: 6.40
Rated speed rpm	: 1150

LOW IDLE

control lever position degree	: 79.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 17.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 500
rack travel mm	: 5.00
Tolerance mm	: ± 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1035
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 780
rack travel mm : 12.50
Tolerance mm : \pm 0.20

Pressure hPa : 590
rack travel mm : 11.90
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 95.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification. sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.01.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 022

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1000A0C894R
Governor no. : F 002 A20 216

Cust. part No. : 3931278

Customer-spec. information
Customer : CDC
Motor : SBT
Power KW : 102.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

L04

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 102.5
<hr/>	
Tolerance cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 3.5
<hr/>	
Check tolerance cm ³ /1000S.	: 6.0
<hr/>	

Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 21.5
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 4.5
Spreed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension click setting x	: 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
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Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 102.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
Spreed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 97.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 11.10
Rated speed rpm	: 1070
Tolerance 1/min	: ± 5

rack travel mm	: 7.00
Rated speed rpm	: 1120
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 7.00
Rated speed rpm	: 1120

LOW IDLE

control lever position degree	: 80.0
tolerance degree	: ± 4.0

Control lever difference	
Grad	: 16.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.10
Tolerance mm	: ± 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.15
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.88
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 750
rack travel mm : 13.00
Tolerance mm : \pm 0.20

Pressure hPa : 480
rack travel mm : 12.20
Tolerance mm : \pm 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113
Combination No. : 0 400 074 899
Injection pump
Pump designation : PES4M55C320RS167
EP type number : 0 410 054 960
Governor
Governor design. : RSF375/1700M69-4
Governor no. : 0 420 021 139

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM601-2.3L
Power KW : 49.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 37.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 3.0

Rated speed rpm : 375

Rack travel in mm : 5.60

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 6.5

Tolerance

cm³/1000 strokes : ± 0.5

Speed

Tolerance

cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity

cm³/1000 strokes : 37.5

Tolerance

cm³/1000 strokes : ± 0.5

Check tolerance

cm³/1000S. : ± 1.5

Speed

Tolerance

cm³/1000 strokes : 2.5

Check tolerance

cm³/1000S. : 3.0

RATED SPEED

control lever
position degree : 50.0

Rated speed rpm : 1800

rack travel mm : 9.25

Tolerance mm : ± 0.25

Rated speed rpm : 2300

rack travel mm : 0.50

Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

LOW IDLE

control lever

position degree : 14.0

tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 5.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 420

rack travel mm : 4.50

Tolerance mm : ± 0.10

rack travel mm : 3.00

Rated speed rpm : 630

Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250

rack travel mm : > 10.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.60

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.35

Tolerance mm : ± 0.05

Rated speed rpm : 1400

rack travel mm : 12.10

Tolerance mm : ± 0.15

Rated speed rpm : 1650

rack travel mm : 11.85

Tolerance mm : ± 0.15

Rated speed rpm : 500

rack travel mm : 11.75

Tolerance mm : \pm 0.15

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 37.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1650
Spreed
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 33.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
rack travel mm : 9.25
Tolerance mm : \pm 0.25
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 375
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed

Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

control lever
position degree : 14.0
tolerance degree : \pm 2.0

Rated speed rpm : 425

Rack travel in mm : 7.80
Tolerance mm : \pm 0.80
Tolerance
cm³/1000 strokes : \pm 3.5
Check tolerance
cm³/1000S. : \pm 4.5
Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 375
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113
Combination No. : 0 400 075 943
Injection pump
Pump designation : PES5M55C320RS168
EP type number : 0 410 055 978
Governor
Governor design. : RSF350/1700M69-5
Governor no. : 0 420 021 147

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM602-2.9L
Power KW : 62.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde
assembly : 1 688 901 111

Opening pressure
bar : 148.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 21.00
Tolerance mm : ± 1.00
Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

*NW after s.o.d. : 15.50
Tolerance : ± 0.20
Check
tolerance *NW : ± 0.30
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 37.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 1.5

Spreed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
 cm³/1000S. : 3.0
 Rated speed rpm : 350
 Rack travel in mm : 5.60
 Tolerance mm : ± 0.10
 Del. quantity
 cm³/1000 strokes : 6.5
 Tolerance
 cm³/1000 strokes : ± 0.5
 Spread
 Tolerance
 cm³/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25
 Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
 Ref. pressure
 ALDA / ADA hPa : 1100
 Del. quantity
 cm³/1000 strokes : 37.5
 Tolerance
 cm³/1000 strokes : ± 0.5
 Check tolerance
 cm³/1000S. : ± 1.5
 Spread
 Tolerance
 cm³/1000 strokes : 2.5
 Check tolerance
 cm³/1000S. : 3.0

RATED SPEED

control lever
 position degree : 50.0
 Rated speed rpm : 1800
 rack travel mm : 9.25
 Tolerance mm : ± 0.25
 Rated speed rpm : 2300
 rack travel mm : 0.50
 Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000
 CRT mm max. : 1.45

LOW IDLE

control lever
 position degree : 14.0
 tolerance degree : ± 2.0

Setting point w/out bumper spring
 Rated speed rpm : 350
 rack travel mm : 5.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 380
 rack travel mm : 4.50
 Tolerance mm : ± 0.10

rack travel mm : 3.00
 Rated speed rpm : 570
 Tolerance 1/min : ± 50

Load pick-up

Rated speed rpm : 250
 rack travel mm : > 9.20

Rated speed rpm : 1000
 CRT mm max. : 1.45

rack travel mm : 5.60
 Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 12.35
 Tolerance mm : ± 0.05

Rated speed rpm : 1400
 rack travel mm : 12.10
 Tolerance mm : ± 0.15

Rated speed rpm : 1650
 rack travel mm : 11.85
 Tolerance mm : ± 0.15

Rated speed rpm : 500
 rack travel mm : 12.10

Tolerance mm : \pm 0.10

ADJUSTMENT TEST ADA/ALDA

SETTING

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 950
rack travel mm : -0.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 1000
Ref. pressure
ALDA / ADA hPa : 900
rack travel mm : -0.60
Tolerance mm : \pm 0.10

Ref. pressure
ALDA / ADA hPa : 750
rack travel mm : -2.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 37.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1650
Spreed
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 34.3
Tolerance
cm³/1000 strokes : \pm 0.8
Check tolerance
cm³/1000S. : \pm 1.8
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

HIGH IDLE

Ref. pressure
ALDA / ADA hPa : 1100
Rated speed rpm : 1800
rack travel mm : 9.25
Tolerance mm : \pm 0.25
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 3.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : > 20.10
Del. quantity
cm³/1000 strokes : 52.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 6.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 7.8
Check tolerance
cm³/1000S. : \pm 2.3
Spreed

Check tolerance
cm³/1000S. : 1.5

SETTING PNEUMATIC FAST IDLE (PLA)
(PLA) POSITION

control lever
position degree : 14.0
tolerance degree : ± 2.0

Rated speed rpm : 400

Rack travel in mm : 6.40
Tolerance mm : ± 0.80

Del. quantity
cm³/1000 strokes : 10.5

Tolerance
cm³/1000 strokes : ± 3.5

Check tolerance
cm³/1000S. : ± 4.5

Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 350
Vacuum hPa : -450.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.01.97
Test oil : ISO 4113

Combination No. : 0 402 616 804

Injection pump
Pump designation : PE6P120A300RS7289
EP type number : 0 412 626 883

Governor
Governor design. :
Governor no. :

Cust. part No. : 866145-P04 v. 11/96

Customer-spec. information
Customer : PENTA
Motor : TAD 1030 G

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Vibration
damper
(RoBo d'aphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.50
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 361.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 8.00

Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 361.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

LOW IDLE

Testing:

Rated speed rpm : 300

rack travel mm : 8.00

Tolerance mm : \pm 0.20

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 15.50

Tolerance mm : \pm 0.05

Start interlock

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 13.01.97
Test oil : ISO 4113

Combination No. : 0 402 648 782

Injection pump
Pump designation : PE8P120A320LS7906
EP type number : 0 412 628 921

Governor
Governor design. : RQV300...1050PA1325
Governor no. : 0 421 814 186

Cust. part No. : 04222 3940 KY

Customer-spec. information
Customer : KHD
Motor : BF8M1015/C
Power KW : 400.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 230
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 5
 : - 3- 1

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.30
Check
tolerance *NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 315.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1098
guide sleeve
travel mm : 10.02
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.24
Tolerance mm : \pm 0.20

Rated speed rpm : 860
guide sleeve
travel mm : 5.59
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 3.24
Tolerance mm : \pm 0.25

Rated speed rpm : 1154
guide sleeve
travel mm : 12.00
Tolerance mm : \pm 0.25

Rated speed rpm : 1230
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1120

Rack travel in mm : 12.60
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1700
Del. quantity
cm³/1000 strokes : 350.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.60
Rated speed rpm : 1085
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1135

Tolerance 1/min : \pm 15
rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : 4.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm min. : $>$ 6.10
Rated speed rpm : 345

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.60
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1700
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 400
rack travel mm : 8.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 400
Pressure hPa : 570
rack travel mm : 9.90
Tolerance mm : \pm 0.10

Pressure hPa : 1100
rack travel mm : 12.50
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.30
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.05.96
Test oil : ISO 4113

Combination No. : 0 402 698 806

Injection pump
Pump designation : PES120A720LS7531
EP type number : 0 412 628 896

Governor
Governor design. : RE30
Governor no. : 0 421 890 022

Cust. part No. : 1362097

Customer-spec. information
Customer : SCANIA
Motor : DSC1409, DSC1416

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4
 : - 6- 8

Phasing : 0-45-90-135-180
 : -270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Vibration
damper
(RoBo diaphragm) : 3.2

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
 $n=600 \text{ min}^{-1}$, $U_{act} = 2.5 \text{ V}$

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min^{-1} : 0

Setting point
(P, R and H pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 13.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(P, R and H pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 6.15
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Setting point
(M pump)

$U_{act} \text{ V}$: 3.100
CRT mm : 12.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Check value
(M pump)

$U_{act} \text{ V}$: 1.700
CRT mm : 5.50
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.30

Stop position

$U_{act} \text{ V}$: Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : ± 0.25
Check
tolerance mm : ± 0.35

ENGINE-SPEED SENSOR
(All P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min^{-1} : 60
Amplitude V : 1.4
Tolerance V : ± 0.6
Check
tolerance V : ± 1.20

Engine speed min^{-1} : 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 700
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 248.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 1.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 4.0
Speed
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: 8.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: 12.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950
 $U_{act} \text{ V}$: 3.000
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 224.0
Tolerance
 $\text{cm}^3/1000 \text{ strokes}$: ± 4.0
Check tolerance
 $\text{cm}^3/1000 \text{ S.}$: ± 6.0

TEST POINT L1

Rated speed rpm : 250
 $U_{act} \text{ V}$: 1.410
Tolerance Volt : ± 0.060
Check tolerance
Volt : ± 0.060
Del. quantity
 $\text{cm}^3/1000 \text{ strokes}$: 16.0

Tolerance
cm3/1000 strokes : \pm 3.0
Speed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113

Combination No. : 0 402 736 889

Injection pump
Pump designation : PES6P120A12GRS7390
EP type number : 0 412 726 945

Governor
Governor design. : RQV350...1100PA1244K
Governor no. : 0 421 815 477

Cust. part No. : 3283279

Customer-spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 90
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery blocking

*NW after s.o.d. : 7.70
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.70

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 173.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1159
guide sleeve
travel mm : 10.27
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.93
Tolerance mm : \pm 0.20

Rated speed rpm : 710
guide sleeve
travel mm : 5.79
Tolerance mm : \pm 0.25

Rated speed rpm : 420

guide sleeve
travel mm : 4.28
Tolerance mm : \pm 0.25

Rated speed rpm : 1380
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1195

Rack travel in mm : 12.00
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 68.0
tolerance degree : \pm 4.0

control lever
position degree : 122.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.70
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

control lever
position degree : 20.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 350
rack travel mm : 4.60
Tolerance mm : \pm 0.10

Rated speed rpm : 250

CRT mm min. : $>$ 7.50

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.70
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.85
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 12.95
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 700
Pressure hPa : 1500
rack travel mm : 13.85
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 700

L25

rack travel mm : 10.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 400
rack travel mm : 11.70
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 171.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 104.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50

Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.01.97
Test oil : ISO 4113

Combination No. : 0 402 746 883

Injection pump
Pump designation : PES6P110A32ORS7198
EP type number : 0 412 716 802

Governor
Governor design. : RQV275...1250PA942K
Governor no. : 0 421 815 234

Cust. part No. : CCEP 5097A

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.02.26 L
Power KW : 132.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

L27

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 14.65
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm	: 1250
<hr/>	
Del. quantity cm ³ /1000 strokes	: 158.0
<hr/>	
Tolerance cm ³ /1000 strokes	: \pm 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: \pm 3.5
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 4.0
<hr/>	
Check tolerance cm ³ /1000S.	: 7.5
<hr/>	

Rated speed rpm	: 275
Del. quantity cm ³ /1000 strokes	: 19.5
Tolerance cm ³ /1000 strokes	: \pm 2.5
Check tolerance cm ³ /1000S.	: \pm 5.0
Spreed	
Tolerance cm ³ /1000 strokes	: 4.5
Check tolerance cm ³ /1000S.	: 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1385
<hr/>	
Rack travel in mm	: 13.60
Tolerance mm	: \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 158.0

Tolerance cm ³ /1000 strokes	: \pm 1.0
Check tolerance cm ³ /1000S.	: \pm 3.5
Spreed	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 7.5

CONTROL LEVER

control lever position degree	: 114.0
tolerance degree	: \pm 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1320
Tolerance 1/min	: \pm 5

rack travel mm	: -10.65
Rated speed rpm	: 1490
Tolerance 1/min	: \pm 15

rack travel mm	: -14.15
Tolerance mm	: \pm 0.55
Rated speed rpm	: 1600

LOW IDLE

control lever position degree	: 62.0
tolerance degree	: \pm 4.0

Testing:

Rated speed rpm	: 200
CRT mm max.	: < -8.90
Rated speed rpm	: 415

TORQUE CONTROL

Rated speed rpm	: 1250
Rated speed rpm	: 750
rack travel mm	: -0.80
Tolerance mm	: \pm 0.10
Rated speed rpm	: 750
rack travel mm	: -5.60

Tolerance mm : \pm 0.10
 Rated speed rpm : 750
 rack travel mm : -8.00
 Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
 Pressure hPa : 1000
 Pressure hPa : -
 Rated speed rpm : 1250
 rack travel mm : -3.40
 Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250
 Pressure hPa : 220
 rack travel mm : -2.60
 Tolerance mm : \pm 0.20
 Pressure hPa : 360
 rack travel mm : -1.75
 Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 150
 Rated speed rpm : $<$ 200
 Check
 speed 1/min : $>$ 130
 Check
 speed 1/min : $<$ 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 127.0
 Tolerance
 cm³/1000 strokes : \pm 2.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Aneroid pressure
 hPa : -
 Rated speed rpm : 750

Del. quantity
 cm³/1000 strokes : 62.0
 Tolerance
 cm³/1000 strokes : \pm 5.0
 Check tolerance
 cm³/1000S. : \pm 8.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 39.0
 Tolerance
 cm³/1000 strokes : \pm 5.0
 Check tolerance
 cm³/1000S. : \pm 8.0
 Spreed
 Tolerance
 cm³/1000 strokes : 8.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 68.0
 Tolerance
 cm³/1000 strokes : \pm 1.0
 Check tolerance
 cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 100.0
 Tolerance
 cm³/1000 strokes : \pm 15.0
 Check tolerance
 cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
 Del. quantity
 cm³/1000 strokes : 19.5
 Tolerance
 cm³/1000 strokes : \pm 2.5
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSEH INJ. PUMP TEST SPECIFICATIONS

Remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.96
Test oil : ISO 4113

Combination No. : 0 402 795 202

Injection pump
Pump designation : PES5H120/720/3LS1002
: -1
EP type number : 0 412 725 202

Governor
Governor design. : RE33
Governor no. : 0 421 890 362

Cust. part No. : 51.111103-7408

Customer-spec. information
Customer : MAIN
Motor : D 2865 LUH 07
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

M03

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 9.99
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60

Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750
Uact V : 3.350
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 332.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000S. : +/- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000
Uact V : 3.290
Prestroke solenoid
Stroke mm : 8.00
Del. quantity
cm³/1000 strokes : 309.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 2.900
Prestroke solenoid
Stroke mm : 9.20
Del. quantity
cm³/1000 strokes : 304.0
Tolerance
cm³/1000 strokes : +/- 4.0
Check tolerance
cm³/1000S. : +/- 8.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 500
Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20
Del. quantity
cm³/1000 strokes : 168.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 8.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 750
Uact V : 1.450
Prestroke solenoid
Stroke mm : 10.00
Del. quantity
cm³/1000 strokes : 65.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 8.0

TEST POINT L1

Rated speed rpm : 300
Uact V : 1.520
Tolerance Volt : \pm 0.060
Check tolerance
Volt : \pm 0.060
Prestroke solenoid
Stroke mm : 7.20
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00

Del. quantity
cm³/1000 strokes : 173.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.08.95
Test oil : ISO 4113

Combination No. : 0 402 796 806

Injection pump
Pump designation : PES6P120A720RS7240
EP type number : 0 412 726 855

Governor
Governor design. : RE30
Governor no. : 0 421 890 013

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.5020

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

Pump-specific values
in Section (B)
must be observed!

(A) INJECTION PUMP SETTINGS
No basic setting.
Setting of constant delivery
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.40

Barrel no. : 1

(B) POSITIONER TESTING
Warm-up time: 3 minutes at
n=600 min⁻¹, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point
(P, R and H pump)

Uact V : 3.100
CRT mm : 13.00
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(P, R and H pump)

Uact V : 1.700
CRT mm : 6.15
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Setting point
(M pump)

Uact V : 3.100
CRT mm : 12.50
Tolerance mm : +/- 0.05
Check
tolerance mm : +/- 0.10

Check value
(M pump)

Uact V : 1.700
CRT mm : 5.50
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.30

Stop position

Uact V : Value with
deenergised adjusting magnet
and control rod in
stop position.

CRT mm : 0.75
Tolerance mm : +/- 0.25
Check
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR
(ALL P and R pumps not
H and M pumps)

Test with control rod
in stop position

Engine speed min-1: 60
Amplitude V : 1.4
Tolerance V : +/- 0.6
Check
tolerance V : +/- 1.20

Engine speed min-1: 600
Difference
Amplitude to
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050
Uact V : 2.900
Del. quantity
cm³/1000 strokes : 236.0
Tolerance
cm³/1000 strokes : +/- 1.0
Check tolerance
cm³/1000s. : +/- 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 700
Uact V : 2.790
Del. quantity
cm³/1000 strokes : 253.0
Tolerance
cm³/1000 strokes : +/- 3.0
Check tolerance
cm³/1000s. : +/- 6.0

Rated speed rpm : 500
Uact V : 2.690
Del. quantity
cm³/1000 strokes : 258.0
Tolerance
cm³/1000 strokes : +/- 5.0
Check tolerance
cm³/1000s. : +/- 8.0

TEST POINT L1

Rated speed rpm : 275
Uact V : 1.580
Tolerance Volt : +/- 0.030

Check tolerance
Volt : ± 0.060
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.01.97
Test oil : ISO 4113

Combination No. : 0 403 446 300

Injection pump
Pump designation : PES6MW100/32ORS1171
EP type number : 0 413 406 156

Governor
Governor design. : RQV300...1300MW80-7
Governor no. : 0 420 083 267

Cust. part No. : 5000691463

Customer-spec. information
Customer : RVI
Motor : MIDS 060212B
Power KW : 117.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

CRT ZERO POSITION

Rack travel in mm : 11.00
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 1300

Del. quantity
cm³/1000 strokes : 90.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 6.0

Rated speed rpm : 300

Rack travel in mm : -5.20
Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000s. : + 4.5

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1355
guide sleeve
travel mm : 8.74
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.38
Tolerance mm : + 0.25

Rated speed rpm : 871
guide sleeve
travel mm : 5.79
Tolerance mm : + 0.25

Rated speed rpm : 324
guide sleeve
travel mm : 1.78
Tolerance mm : + 0.25

Rated speed rpm : 374
guide sleeve
travel mm : 2.49
Tolerance mm : + 0.25

Rated speed rpm : 470

guide sleeve
travel mm : 3.30
Tolerance mm : + 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1430

Rack travel in mm : 9.80
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 90.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 6.0

CONTROL LEVER

control lever
position degree : 299.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1380
Tolerance 1/min : + 5

rack travel mm : -7.00
Rated speed rpm : 1480
Tolerance 1/min : + 15

rack travel mm : -10.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 245.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -5.20
Tolerance mm : \pm 0.20

Rated speed rpm : 200

CRT mm min. : $<$ -3.40

TORQUE CONTROL

Rated speed rpm : 1300

Rated speed rpm : 900

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : -1.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 120
rack travel mm : -1.40
Tolerance mm : \pm 0.10

Pressure hPa : 200
rack travel mm : -0.65
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 80

M11

Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 89.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 51.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.01.97
Test oil : ISO 4113
Combination No. : 0 403 476 146
Injection pump
Pump designation : PES6MW100/32ORS1245
EP type number : 0 413 406 247
Governor
Governor design. : RSV300...1100MWA400
Governor no. : 0 420 085 293

Cust. part No. : 11032700

Customer-spec. information
Customer : VCE
Motor : TD 63KDE
Power KW : 90.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 046
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

M13

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.35
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

Spreed	
Tolerance	
cm3/1000 strokes :	3.5

Check tolerance	
cm3/1000S. :	6.0

Rated speed rpm :	300
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Rack travel in mm :	5.40
Tolerance mm :	+ 0.10

Del. quantity	
cm3/1000 strokes :	17.0

Tolerance	
cm3/1000 strokes :	+ 2.0

Check tolerance	
cm3/1000S. :	+ 4.5

Spreed	
Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree :	- 3
Rated speed rpm :	800

Rack travel in mm :	0.65
Tolerance mm :	+ 0.35

governor spring	
pre-tension	
click setting x :	5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1100
Aneroid pressure	
hPa :	1500
Del. quantity	
cm3/1000 strokes :	105.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	

Tolerance	
cm3/1000 strokes :	3.5
Check tolerance	
cm3/1000S. :	6.0

CONTROL LEVER

control lever	
position degree :	81.0
tolerance degree :	+ 4.0

RATED SPEED	
rack travel mm :	11.30
Rated speed rpm :	1145
Tolerance 1/min :	+ 5

rack travel mm :	4.00
Rated speed rpm :	1265
Tolerance 1/min :	+ 15

rack travel mm :	1.00
Tolerance mm :	+ 0.70
Rated speed rpm :	1420

rack travel mm :	4.00
Rated speed rpm :	1275

LOW IDLE

control lever	
position degree :	106.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	300
rack travel mm :	4.90
Tolerance mm :	+ 0.10

Testing:

Rated speed rpm :	300
rack travel mm :	5.40
Tolerance mm :	+ 0.10

rack travel mm :	2.00
Rated speed rpm :	580
Tolerance 1/min :	+ 30

Rated speed rpm :	100
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CRT mm min. :	> 19.50
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TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 13.90
Tolerance mm : \pm 0.10

Rated speed rpm : 820
rack travel mm : 12.80
Tolerance mm : \pm 0.20

Rated speed rpm : 770
rack travel mm : 13.10
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.90
Tolerance mm : \pm 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 11.05
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 290
rack travel mm : 13.00
Tolerance mm : \pm 0.10

Pressure hPa : 120
rack travel mm : 11.45
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 130.0

M15

Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 77.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.0
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 14.01.97
Test oil : ISO 4113

Combination No. : 0 403 476 149

Injection pump
Pump designation : PES6MW100/720RS1131
EP type number : 0 413 406 123

Governor
Governor design. : RSV350...1200MWOA406
Governor no. : 0 420 085 295

Cust. part No. : 0270741502

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366 A
Power KW : 101.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 10.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 89.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 350

Rack travel in mm : 5.80
Tolerance mm : ± 0.25

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880
Aneroid pressure

hPa : 800

Del. quantity
cm³/1000 strokes : 89.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

RATED SPEED

M17

rack travel mm : 9.50
Rated speed rpm : 933
Tolerance 1/min : ± 3

rack travel mm : 4.00
Rated speed rpm : 1005
Tolerance 1/min : ± 5

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1100

LOW IDLE

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : ± 0.25

rack travel mm : 2.00
Rated speed rpm : 450
Tolerance 1/min : ± 30

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 880
rack travel mm : 10.55
Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 10.55
Tolerance mm : ± 0.10

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.30
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 500

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 350
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.01.97
Test oil : ISO 4113
Combination No. : 0 400 845 082
Injection pump
Pump designation : PES5A95D410RS268C
EP type number : 0 410 895 972
Governor
Governor design. : RQV300...1150AB1217L
Governor no. : 0 420 212 186

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F5L413FFRW
Power KW : 85.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 8.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 73.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm ³ /1000S.	:	6.0
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Rated speed rpm	:	300
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Rack travel in mm	:	6.50
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	15.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 4.5
Spread Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Dimension a mm	:	1.40
Rated speed rpm	:	1150
guide sleeve travel mm	:	8.00
Tolerance mm	:	+ 0.20

Rated speed rpm	:	300
guide sleeve travel mm	:	1.40
Tolerance mm	:	+ 0.10

Rated speed rpm	:	500
guide sleeve travel mm	:	3.50
Tolerance mm	:	+ 0.10

Rated speed rpm	:	800
guide sleeve travel mm	:	5.40
Tolerance mm	:	+ 0.20

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1200

Rack travel in mm	:	16.50
Tolerance mm	:	+ 1.30

M20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1150
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	73.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 3.0
Spread Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	6.0

CONTROL LEVER

control lever position degree	:	120.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	7.30
Rated speed rpm	:	1195
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1245
Tolerance 1/min	:	+ 15

rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1350

LOW IDLE

control lever position degree	:	69.0
tolerance degree	:	+ 4.0

Testing:

Rated speed rpm	:	300
rack travel mm	:	6.50
Tolerance mm	:	+ 0.10

Rated speed rpm	:	100
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CRT mm min.	:	> 8.00
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Rated speed rpm : 368

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 8.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 9.75
Tolerance mm : \pm 0.05

Rated speed rpm : 840
rack travel mm : 9.40
Tolerance mm : \pm 0.10

Rated speed rpm : 1010
rack travel mm : 8.70
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 67.5
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

M21

rack travel mm : 14.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 048

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...950A0C927R
Governor no. : F 002 A20 235

Cust. part No. : 3283916

Customer-spec. information
Customer : CUMMINS
Motor : 6BTA-160/1900
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.10
Check
tolerance *NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 119.4

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.90
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 850
Del. quantity
cm³/1000 strokes : 119.4

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 91.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.30
Rated speed rpm : 1000
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1200

rack travel mm : 4.00
Rated speed rpm : 1075

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Control lever difference
Grad : 15.0
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.90
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 540
Tolerance 1/min : + 30

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.30
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 850

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 9.90
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : + 0.20

Pressure hPa : 350
rack travel mm : 11.45
Tolerance mm : + 0.20

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.6
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 122.5
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 15.0

LOW IDLE

Rated speed rpm : 475
Del. quantity
cm³/1000 strokes : 23.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113
Combination No. : 0 402 076 756
Injection pump
Pump designation : PES6P100A320LS3317
EP type number : 0 412 006 706
Governor
Governor design. : RSV400...1200P5A587
Governor no. : 0 421 833 446

Cust. part No. : 1820269C91

Customer-spec. information
Customer : NAVISTAR
Motor : DTA-466
Power KW : 204.0

TEST BENCH REQUIREMENTS

Inlet Line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

M25

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 176.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.20
Tolerance mm : + 0.10

(9) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 176.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 13.60

Rated speed rpm : 1245
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1315
Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 25.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 400
rack travel mm : 5.20
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 14.65
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1500
rack travel mm : 14.65
Tolerance mm : + 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.40
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 650

rack travel mm : 13.20

Tolerance mm : \pm 0.20

Pressure hPa : 240

rack travel mm : 9.55

Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity

cm³/1000 strokes : 72.0

Tolerance

cm³/1000 strokes : \pm 2.0

Check tolerance

cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.50

Tolerance mm : \pm 0.50

Del. quantity

cm³/1000 strokes : 145.0

Tolerance

cm³/1000 strokes : \pm 20.0

Check tolerance

cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 757

Injection pump
Pump designation : PES6P100A320LS3319
EP type number : 0 412 006 707

Governor
Governor design. : RSV350...1300P5A565
Governor no. : 0 421 833 414

Cust. part No. : 1820268C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-408
Power Kw : 141.5

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8

Overflow quantity
min. l/h : 260
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 138.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

Rack travel in mm : 5.60

Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 138.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever

position degree : 111.0

tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.50

Rated speed rpm : 1345

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1405

Tolerance 1/min : ± 5

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1500

rack travel mm : 4.00

Rated speed rpm : 1410

LOW IDLE

control lever

position degree : 71.0

tolerance degree : ± 6.0

Testing:

Rated speed rpm : 350

rack travel mm : 5.60

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1300

rack travel mm : 12.55

Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300

Pressure hPa : 1200

rack travel mm : 12.55

Tolerance mm : ± 0.05

Pressure hPa : -

Rated speed rpm : 500

rack travel mm : 8.30

Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 1300
Pressure hPa : 650
rack travel mm : 11.50
Tolerance mm : \pm 0.20
Pressure hPa : 290
rack travel mm : 9.25
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 74.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113
Combination No. : 0 402 076 760
Injection pump
Pump designation : PES6P100A320LS3317
EP type number : 0 412 006 706
Governor
Governor design. : RSV415...1100P8A577
Governor no. : 0 421 833 433
Cust. part No. : 1818694C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 145.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 076
Inlet press. bar : 2.8
Tolerance bar : ± 0.1
Test nozzle holde
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

ND3

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.75
Tolerance mm : ± 0.05
Del. quantity
cm3/1000 strokes : 138.0
Tolerance
cm3/1000 strokes : ± 1.0
Check tolerance
cm3/1000S. : ± 3.0
Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 52.0
tolerance degree : \pm 4.0

control lever
position degree : 102.0

NO4

tolerance degree : \pm 6.0

RATED SPEED
rack travel mm : 11.40
Rated speed rpm : 1150
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 6.0

control lever
position degree : 21.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : $>$ 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.75
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 480
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 240
rack travel mm : 9.45
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 761

Injection pump
Pump designation : PES6P100A320LS3317
EP type number : 0 412 006 706

Governor
Governor design. : RSV415...1100P8A576
Governor no. : 0 421 833 432

Cust. part No. : 1817593C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 161.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

N06

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 151.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.30
Tolerance mm : +- 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : +- 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 151.0
Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 51.0
tolerance degree : +- 4.0

control lever
position degree : 101.0

N07

tolerance degree : +- 6.0

RATED SPEED

rack travel mm : 12.10
Rated speed rpm : 1150
Tolerance 1/min : +- 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : +- 5

rack travel mm : 0.85
Tolerance mm : +- 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 72.0
tolerance degree : +- 6.0

control lever
position degree : 22.0
tolerance degree : +- 4.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.30
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.35
Tolerance mm : +- 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 13.35
Tolerance mm : +- 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1100
Pressure hPa : 540
rack travel mm : 11.90
Tolerance mm : \pm 0.20

Pressure hPa : 250
rack travel mm : 9.45
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 76.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 763

Injection pump
Pump designation : PES6P100A320LS3317
EP type number : 0 412 006 706

Governor
Governor design. : RSV415...1100P8A579
Governor no. : 0 421 833 435

Cust. part No. : 1822012C91

Customer spec. information
Customer : NAVISTAR
Motor : DT-466
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 2.4

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 125.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.40
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 125.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : ± 4.0

control lever
position degree : 105.0

N10

tolerance degree : ± 6.0

RATED SPEED

rack travel mm : 11.20
Rated speed rpm : 1150
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 6.0

control lever
position degree : 24.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.40
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.35
Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : ± 0.05

Pressure hPa : -
Rated speed rpm : 500
rack travel mm : 8.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1100
Pressure hPa : 440
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 240
rack travel mm : 9.75
Tolerance mm : \pm 0.05

Start interlock

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 81.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 770

Injection pump
Pump designation : PES6P11CA320LS3318
EP type number : 0 412 016 749

Governor
Governor design. : RSV350...750P4A561
Governor no. : 0 421 833 451

Cust. part No. : 1823837C92

Customer-spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 224.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.50

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 225.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 340

Rack travel in mm : 5.20

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 35.0

Tolerance

cm³/1000 strokes : ± 2.0

Check tolerance

cm³/1000S. : ± 4.5

Spread

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 225.5

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Spread

Tolerance

cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever

position degree : 47.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.20

Rated speed rpm : 750

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 800

Tolerance 1/min : ± 5

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 900

rack travel mm : 4.00

Rated speed rpm : 805

LOW IDLE

control lever

position degree : 26.0

tolerance degree : ± 4.0

Testing:

Rated speed rpm : 340

rack travel mm : 5.20

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 650

rack travel mm : 12.55

Tolerance mm : ± 0.05

Start interlock

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 340
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 774

Injection pump
Pump designation : PES6P100A320LS33 1/2
EP type number : 0 412 006 710

Governor
Governor design. : RSV415...1100P8A596
Governor no. : 0 421 833 462

Cust. part No. : 1824624C91

Customer spec. information
Customer : NAVISTAR
Motor : DT-530
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 109.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.20
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : ± 6.0

RATED SPEED
rack travel mm : 10.50

Rated speed rpm : 1150
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 12.50
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200
rack travel mm : 12.50
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 800
Pressure hPa : 445
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 230
rack travel mm : 9.50
Tolerance mm : \pm 0.05

Start interlock

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 138.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.96
Test oil : ISO 4113

Combination No. : 0 402 076 775

Injection pump
Pump designation : PES6P100A320LS3342
EP type number : 0 412 006 710

Governor
Governor design. : RSV415...1100P8A597
Governor no. : 0 421 833 463

Cust. part No. : 1824626C91

Customer-spec. information
Customer : NAVISTAR
Motor : DT-530
Power kW : 153.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 104.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rack travel in mm : 5.60
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 104.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : ± 6.0

RATED SPEED
rack travel mm : 10.50

Rated speed rpm : 1150
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1205

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 415
rack travel mm : 5.60
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.55
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 12.50
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200
rack travel mm : 12.55
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 800
Pressure hPa : 435
rack travel mm : 11.60
Tolerance mm : \pm 0.20

Pressure hPa : 250
rack travel mm : 10.05
Tolerance mm : \pm 0.05

Start interlock

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 131.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 78.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.10.96
Test oil : ISO 4113

Combination No. : 0 402 736 866

Injection pump
Pump designation : PES6P120A120RS7349
EP type number : 0 412 726 920

Governor
Governor design. : RGV400...1250PA1171K
Governor no. : 0 421 815 437

Cust. part No. : 3928149

Customer-spec. information
Customer : CDC
Motor : 6BTA-A
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 6.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.95
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 177.0
<hr/>	
Tolerance cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: + 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 8.0
<hr/>	
Check tolerance cm ³ /1000S.	: 12.0
<hr/>	

Rated speed rpm	: 420
Rack travel in mm	: 5.60
Tolerance mm	: + 0.20
Del. quantity cm ³ /1000 strokes	: 18.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 5.0
Spreed	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1410
Rack travel in mm	: 13.00
Tolerance mm	: + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure hPa	: 1200
Del. quantity cm ³ /1000 strokes	: 177.0

Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spreed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

CONTROL LEVER

control lever position degree	: 120.0
tolerance degree	: + 6.0

RATED SPEED

rack travel mm	: 12.90
Rated speed rpm	: 1320
Tolerance 1/min	: + 15
Check speed 1/min	: + 20

rack travel mm	: 4.00
Rated speed rpm	: 1475
Tolerance 1/min	: + 5
Check speed 1/min	: + 10

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1550

LOW IDLE

control lever position degree	: 72.0
tolerance degree	: + 6.0

Control lever difference Grad	: 48.0
tolerance degree	: + 6.0

Testing:

Rated speed rpm	: 420
rack travel mm	: 5.60
Tolerance mm	: + 0.20

Rated speed rpm	: 300
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CRT mm min.	: > 8.90
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Rated speed rpm	: 420
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TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.95
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 10.90
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 1250
rack travel mm : 9.70
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 585
rack travel mm : 12.90
Tolerance mm : \pm 0.30

Pressure hPa : 305
rack travel mm : 10.95
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 315

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 325

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800

Del. quantity
cm³/1000 strokes : 132.0
Tolerance

cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 420
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.97
Test oil : ISO 4113
Combination No. : 0 402 746 646
Injection pump
Pump designation : PES6P120A320RS7363
EP type number : 0 412 726 931
Governor
Governor design. : RQV325...1000FA1203K
Governor no. : 0 421 815 458

Cust. part No. : 313GC5216-P4

Customer-spec. information

Customer : MACK
Motor : EM5-290
Power KW : 217.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 084
Inlet press. bar : 3.0
Tolerance bar : + 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 008
Outside diameter : 6.0

N24

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0
Prestroke mm : 4.20
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 12.00
Tolerance mm : + 1.00
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
Tolerance : + 0.30
Check
tolerance °NW : + 0.75
Start of delivery blocking
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 14.05
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 291.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.60

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 47.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1056
guide sleeve
travel mm : 9.06
Tolerance mm : + 0.25

Rated speed rpm : 325
guide sleeve
travel mm : 1.53
Tolerance mm : + 0.25

Rated speed rpm : 898
guide sleeve
travel mm : 7.74
Tolerance mm : + 0.25

Rated speed rpm : 371
guide sleeve
travel mm : 2.23
Tolerance mm : + 0.25

Rated speed rpm : 421

N25

guide sleeve
travel mm : 2.85
Tolerance mm : + 0.25

Rated speed rpm : 610
guide sleeve
travel mm : 4.40
Tolerance mm : + 0.25

Rated speed rpm : 1440
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 291.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : + 6.0

RATED SPEED
rack travel mm : 13.00
Rated speed rpm : 1050
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : ± 6.0

Testing:

Rated speed rpm : 325
rack travel mm : 4.60
Tolerance mm : ± 0.10

Rated speed rpm : 275

CRT mm min. : > 5.50

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 14.05
Tolerance mm : ± 0.05

Rated speed rpm : 575
rack travel mm : 14.30
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 15.00
Tolerance mm : ± 0.10

Rated speed rpm : 450
rack travel mm : 13.60
Tolerance mm : ± 0.40

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 750
Pressure hPa : 1200

Pressure hPa : -
Rated speed rpm : 750
rack travel mm : 8.30
Tolerance mm : ± 0.05

MEASUREMENT

Rated speed rpm : 750

Pressure hPa : 890
rack travel mm : 13.45
Tolerance mm : ± 0.20

Pressure hPa : 455

rack travel mm : 10.05
Tolerance mm : ± 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 275

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 575
Del. quantity
cm³/1000 strokes : 356.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.80
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 197.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 30.0

LOW IDLE

Rated speed rpm : 325
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet